AC/DC PORTABLE CASSETTE RECORDER 3 BAND RADIO

MODEL CR-1053L/S

SERVICE DATA

MAY./1978

SUPERSCOPE®
BY marantz®

SUPERSCOPE INC.
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SPECIFICATIONS

GENERAL

DIMENSIONS . . . . . 310 mm x 198 mm x 96 mm (12¼" x 7¾" x 3¾")
WEIGHT . . . . . 2.7 kg (5.9 lbs) with Batteries
POWER REQUIREMENTS . . . . . .
DC: Four "D" size flashlight batteries, 6 V
AC Source: CR-1053L: 220 V ∿ 50 Hz
CR-1053S: 110 ~ 130 V/ 220 ~ 240 V ∿ 50/60 Hz
NUMBER OF SEMICONDUCTORS
IC 1
Transistor 7
FET 1
Diode 16
TERMINALS
Microphone . . . 0.8 mV/10 kΩ/3.5φ Mini Type
Ext. Speaker . . . . . 4 Ω
DIN . . . . . Input: 40 mV/47 kΩ
. . . . . Output: 0.5 V/ 4 kΩ (for N version)
AC Inlet
ACCESSORIES . . . . . AC Cord

TAPE RECORDER SECTION

TAPE . . PHILIPS Type Cassette Tape or Equivalent
RECORDING SYSTEM . . . . . DC Bias
RECORDING TRACK . . . . . Dual Track
ERASING SYSTEM . . . . . DC Erase
RECORDING TIME . . . . . 60 Minutes (C-60)
FAST FORWARD TIME . . . . . 110 Seconds (C-60)
REWIND TIME . . . . . 110 Seconds (C-60)
TAPE SPEED . . . . . 4.8 cm/sec (1-7/8 ips)

TUNER SECTION

CIRCUIT SYSTEM . . . . . 3-Band FM/MW, SW(LW) Superheterodyne
FREQUENCY RANGE . . . FM: 88 ~ 108 MHz
MW: 525 ~ 1605 kHz
SW: 6 ~ 18 MHz
LW: 150 ~ 370 kHz
INTERMEDIATE FREQUENCY . . . FM: 10.7 MHz
AM: 455 kHz
ANTENNA . . . . . FM, SW: Telescopic Monopole
MW, LW: Ferrite Bar

1. OUTSTANDING FEATURES

1.1 TOTAL SHUT OFF

This model uses the total shut-off type tape mechanism. This is such that when the tape has run to the end in any mode (Recording, Playback, Rewind and Fast Forward), then the auto-stop mechanism operates automatically to release the button.

1.2 2 WAY POWER SUPPLY

The CR-1053L (S) can be operated with two types of power supply; UM-1 batteries (four pieces), AC power line. To prevent connection of AC source at the same time, the AC jack (J001) contacts select a single desired power supply. The power supply selection is in the priority order;

(1) AC power line
(2) built-in batteries

2. INSTRUMENTS FOR ADJUSTMENT & MEASUREMENT

To perform adjustment and measurement for the CR-1053L/S, prepare the following devices.

Radio Section:

FM: FM RF Signal Generator ..... (Output Impedance 50 Ω)
Matching Box ..... (Input 50 Ω Output 75 Ω)
4 Ω Load Resistor
Audio VTVM & Distortion Meter (also used for other items)

AM: AM RF Signal Generator ..... (Output Impedance 50 Ω)
Test Loop Antenna

Tape Section:

Audio Frequency Oscillator
Attenuator (600 Ω)
Band Pass Filter
Wow & Flutter Meter
Torque Cassette (CT-100M)
Test Tape for

Rec/Play	TDK AC-211
Wow & Flutter Meter	TEAC MTT-111
Output & Signal-to-Noise Ratio	TEAC MTT-112
Frequency Response	TEAC MTT-116R
Azimuth Alignment	TEAC MTT-115

3. BOTTOM CASE COVER AND CHASSIS DISASSEMBLING PROCEDURES

3-1 REMOVAL OF CASSETTE HOLDER

To remove the cassette holder, push A and B in the direction of the arrow shown in the figure.

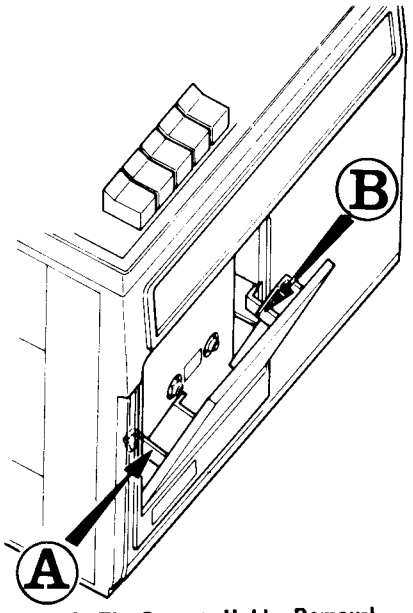


Figure 1. The Cassette Holder Removal

3-2 REMOVAL OF FRONT COVER

(1) Remove four screws each of D from A.
(2) Then the cover will be opened in the direction of the arrow shown in the figure. At that time, be careful of wires to be connected to the speaker and headphone jack.

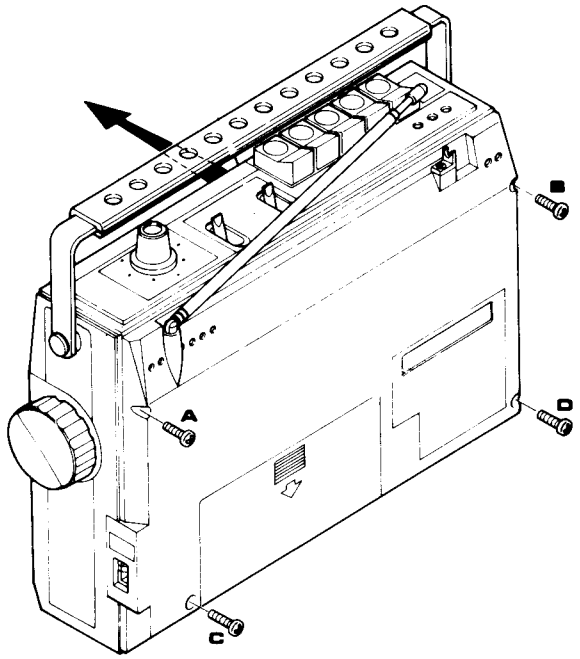


Figure 2. The Front Cover Removal

3-3 REMOVAL OF SCALE PLATE

Remove screws A and B in the figure. At that time, do so taking care of the pointer.

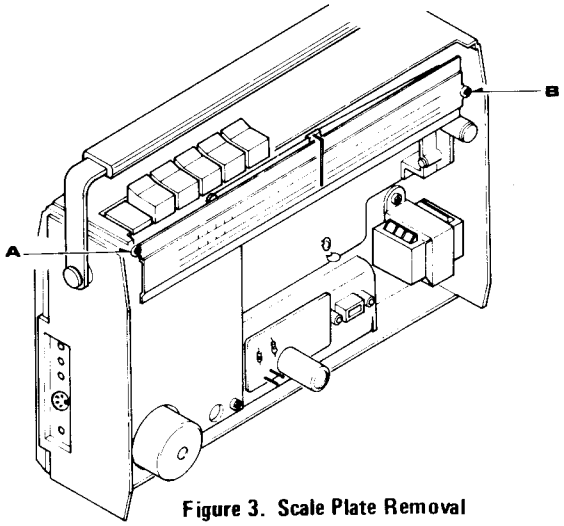


Figure 3. Scale Plate Removal

3-4 REMOVAL OF MECHANISM

Remove four screws 1 to 4 in the figure. Remove motor leads. Then the mechanism will be removed.

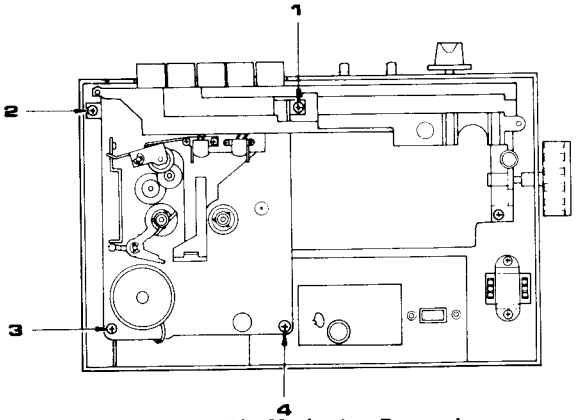


Figure 4. The Mechanism Removal

3-5 REMOVAL OF CHASSIS

Remove four screws of attaching the mechanism. Remove the volume knob A and tuning knob B. Remove five screws C to G. Then the chassis will be separated from the mechanism.

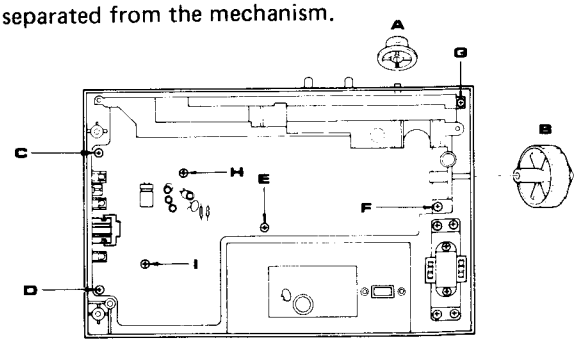


Figure 5. The Chassis Removal

3-6 REMOVAL OF P.W.BOARD

Remove the drum from the V.C (screw A). Fit the drum in the chassis boss. Remove screw B (one) from P.W.Board and switch two setscrews C. and D. Remove nut E P.W.Board will be separated from the chassis boss.

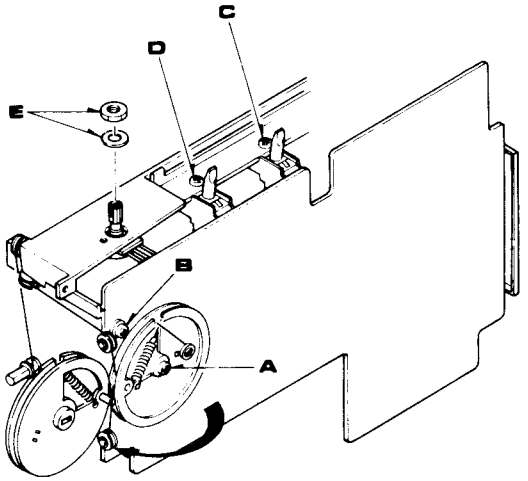


Figure 6. The P.W. Board Removal

4. DIAL STRINGING PROCEDURES

(1) Hook the dial string spring at hole **A**.
(2) Thread the dial string from the cutout **B** on the drum and wrap around the drum one turn in the direction of the arrow **Z**. Pass the pulleys **C**, **D**, **E** and **F**. Wrap around the dial shaft **G** three turns and pass the pulley **H**. Guide it through the cutout **B** of the drum to the groove of boss **I** and wrap it thereon a turn. Then secure the string with the ring "**J**".

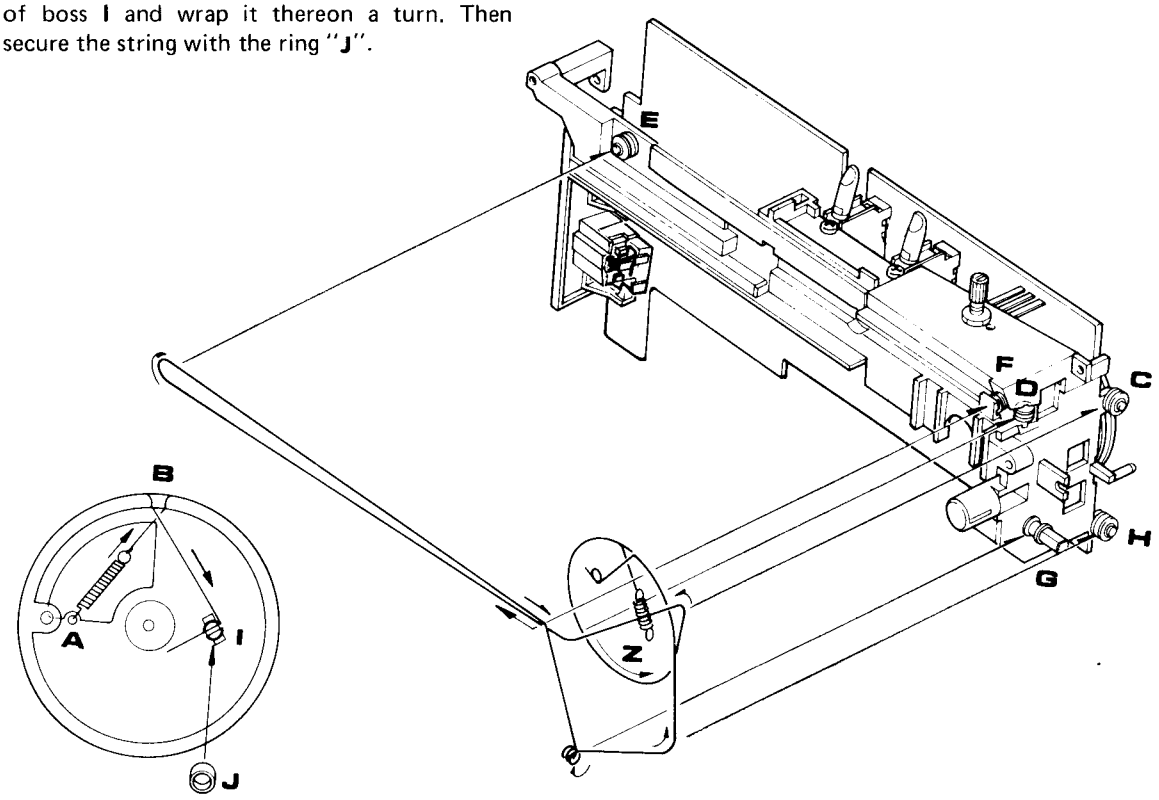


Figure 7. Dial Stringing

5. ADJUSTMENT INSTRUCTIONS

Precautions: Prior to any adjustment or measurement, clean the head slits with gauze containing alcohol or carbon tetrachloride, and fully demagnetize the heads, capstan and similar parts.

5-A MECHANICAL ADJUSTMENTS

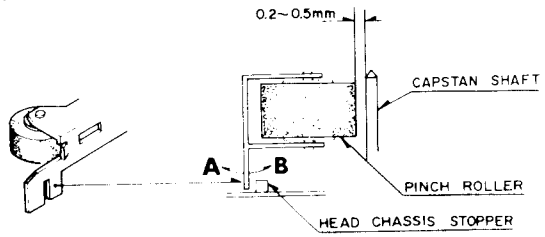
5A-1 Play Operation Check

(1) TIMING CHECK

- Depress button PLAY, and check to make sure that the take-up reel rotates first and then that the pinch roller rotates. Simultaneous rotation of these reel and roller is not acceptable.

  NOTE: For this check, slowly depress the button without tape mounted regardless of locking condition.

- Slowly depress button PLAY, and the take-up reel will start rotation. At that time, check to make sure that a clearance between the pinch roller and capstan is less than 0.5 mm.



(2) TIMING ADJUSTMENT

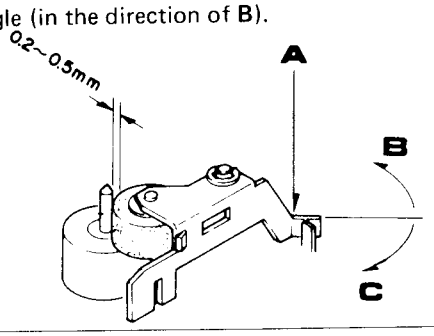
If out of specification, bend the part of the pinch roller bracket which faces the head chassis stopper. In the figure shown above, bend the part in the direction of **A** to decrease the clearance. To increase the clearance, bend the part in the direction of **B**.

NOTE: After adjustment, check to be sure that the pinch roller bracket does not contact the head chassis stopper in PLAY mode.

5A-2 Pause Timing

Depress button PLAY, slowly depress button PAUSE, and the take-up reel will pause. At that time, check to ensure that a clearance between the pinch roller and capstan ranges from 0.2 to 0.5 mm. If out of the range, adjust a bending angle of the pinch roller bracket arm (view **A**).

NOTE: To increase a clearance between the pinch roller and capstan, decrease the angle (in the direction of **C** in the figure). To decrease the clearance, increase the angle (in the direction of **B**).

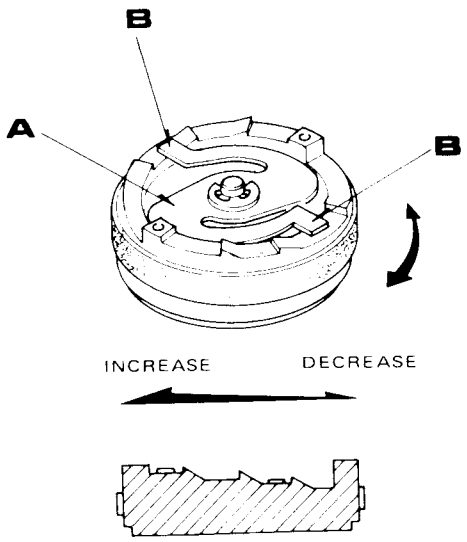


5A-3 Torque Adjustment (FF, REW)

Set the extended parts (**B** in the figure shown above) of the torque adjustment leaf spring (**A** in the figure) of the FF/REW idler on any one of three stepping parts of the idler.

NOTE: To increase torque, set the extended parts to the stepping part of "INCREASE" and to decrease it, set those to the stepping part of "DECREASE"

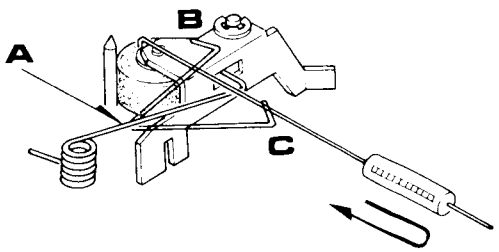
Adjusting range: 70 ~ 110 g.cm.



5A-4 Pinch Roller Pressing Force

As shown above, measure pressing force of the pinch roller using a gauge. For measurement, proceed as follows. Pull the pinch roller off the capstan shaft as shown with the arrow, and gradually release it to the capstan. Just when the pinch roller starts rotating, read an indication of a gauge. Pressing force must range in 300 g ±50 g. If out of the range, bend the pinch roller spring in the direction of **B** or **C** at section **A** shown above.

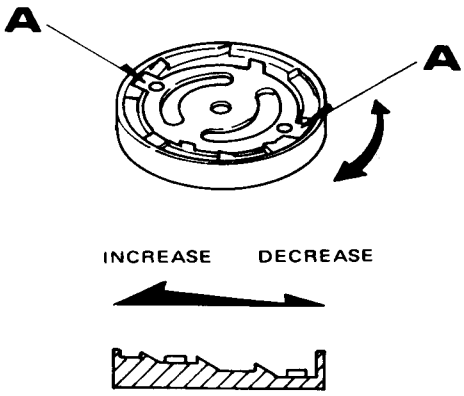
NOTE: To increase pressing force, bend the said spring in the direction of **B**, and to decrease the force, bend it in the direction of **C**.



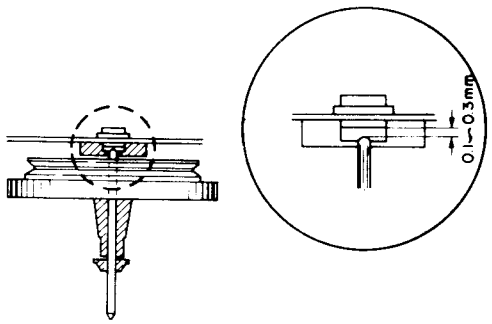
5A-5 Torque Adjustment (PLAY)

Mount the extended parts A (two) of the disc leaf spring on any one of the stepping parts of the idler. Adjusting range: 40 to 70 g.cm.

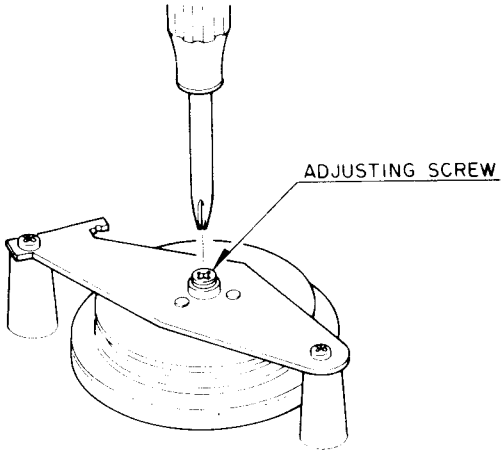
NOTES:
(1) To increase torque, mount the extended parts on "INCREASE" and to decrease torque, mount them on "DECREASE".
(2) Check the take-up clutch for slipping. When the reel base is paused, the wheel must smoothly rotate. The wheel, when irregularly rotating or stopping, is not acceptable.



5A-6 Flywheel Thrust Adjustment

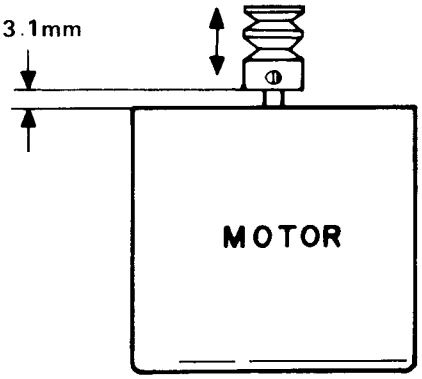


Adjust a clearance between the capstan tail end and thrust bearing to a range from 0.1 to 0.3 mm as shown. Adjust the thrust screw in the flywheel bracket using a Philips screwdriver. Since the clearance cannot be directly measured, capture a distance in an axial step of the flywheel with the sensibility. After adjustment has completed, secure the thrust screw with the screw lock.



5A-7 Installation of Motor Pulley

Check to ensure that a clearance between the DC motor and pulley is 2.2 mm. If out of specification, reposition the pulley as shown.



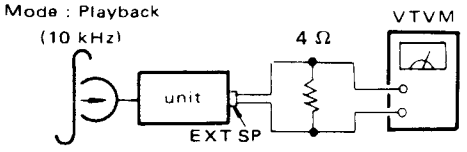
5A-8 Tape Speed Adjustment

Mount 3 kHz test tape on the set, and check to make sure that the meter pointer of a measuring instrument (frequency counter) indicates 3000 Hz ±3% or less as specified. If tape speed exceeds the high limit, replace the pulley with a pulley of parts No. 4367262050. If the speed is lower than the low limit, replace it with a pulley of parts No. 4367262040.

5-B ELECTRICAL ADJUSTMENT

5B-2 Azimuth Adjustment

Play back the 10 kHz or 6.3 kHz standard alignment tape. Adjust the azimuth adjusting screw 836N. After adjustment, repeatedly start and stop the tape several times to ensure no azimuth deviation.



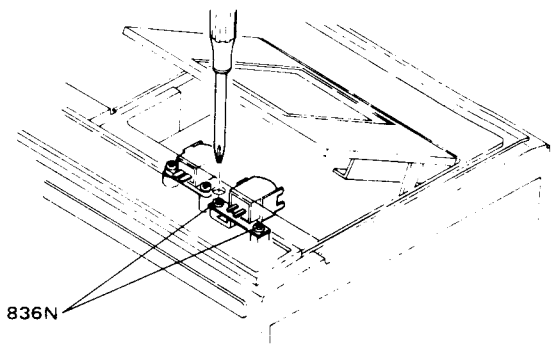


Figure 8. Azimuth Adjustment

5-C MEASUREMENT INSTRUCTIONS AUDIO

5C-1 Record/Playback Signal-to-Noise Ratio Measurements

Connect an audio oscillator to the EXT MIC jack. Connect an 4 Ω dummy load to a VTVM, and connect it to the EXT SP jack. Record a 1 kHz signal on unused tape. At that time, adjust input level to be recorded on the tape to 280 nWb/m (+2.1 dB above the level of MTT112B). In turn, insert the erasing plug into the EXT MIC jack for no signal, and perform the recording operation.

Play back the recorded portion of the tape, and adjust the VOLUME control for 50 mW output power (4 Ω, 0.45 V). Let the 50 mW output power be 0 dB as reference level, and compare with the noise level recorded in the state of no input signal. The standard DC and AC signal-to-noise ratios are greater than 35 dB and 32 dB, respectively.

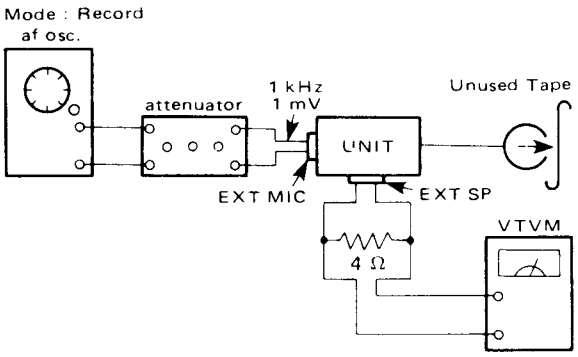
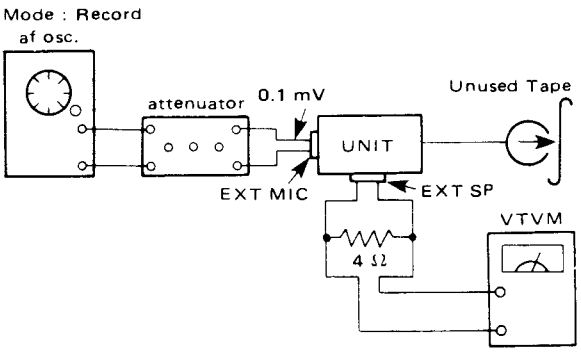


Figure 9. Record/Playback Signal-to-Noise Ratio Measurement

5C-2 Record/Playback Frequency Response Measurement

Record a 1 kHz, 0.1 mV signal on unused tape. Change the signal frequency and record the signal. Play back the 1 kHz signal, and adjust the VOLUME control for 0.5 mW output power (4 Ω, 0.045 V). Let the 0.5 mW output power be 0 dB as reference level, and compare with the signal levels of different frequencies. The standard frequency response is +4 dB to -8 dB at 250 Hz and +4 dB to -8 dB at 4 kHz.



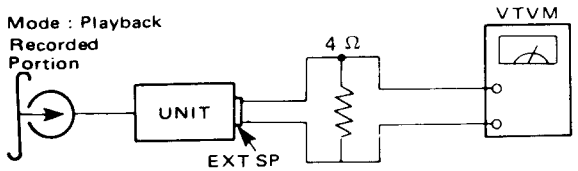


Figure 10. Record/Playback Frequency Response Measurement

5C-3 Erasing Level Measurement

Record a 1 kHz, 3 mV signal on unused tape. Rewind back a half of the recorded portion. Insert the erasing plug into the EXT MIC jack for erasing the recorded signal.

In turn, play back the tape, and adjust the VOLUME control for 50 mW (0.45 V) output power of the recorded tape portion. Let the 50 mW output power be 0 dB as reference level, and compare with the signal level of the erased portion. (Note that in this measurement a 1 kHz bandpass filter should be used.) The erasing head current is to be approximately 8 mA DC. The standard erasing level is greater than 42 dB.

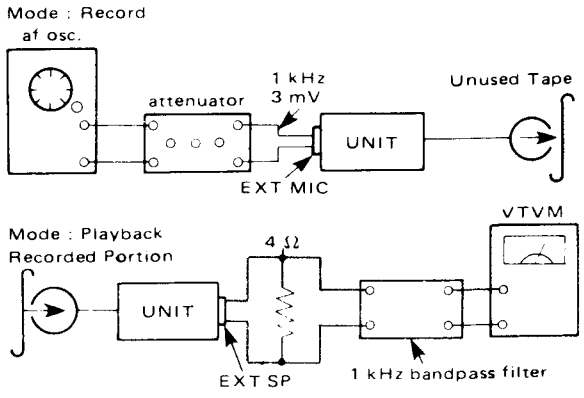


Figure 11. Erasing Level Measurement

6. ALIGNMENT PROCEDURES

6.1 FM ALIGNMENT PROCEDURES

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Dial Setting of the Unit	Adjustment
	FM IF ALIGNMENT (BAND switch in FM position)				
1	Sweep generator to point TP2 (J104) Ground J105	10.7 MHz Market at 10.6, 10.7 and 10.8 MHz	Oscilloscope to point TP3	Quiet point on band	L105, L106, L107 and L108 for maximum and symmetric response
2			Oscilloscope to point TP4		L109 for straight and symmetric "S" curve response
3	Repeat steps 1 and 2.				
	FM RF ALIGNMENT (BAND switch in FM position)				
1	RF generator to FM Antenna terminals TP1 through matching network Ground J102 (75 ohms, balanced)	87 MHz	VTVM to output terminal	87 MHz with tuning gang, closed	L104 for maximum
2		109 MHz		109 MHz with tuning gang, open	CT-2 for maximum
3		98 MHz		98 MHz	L101 for maximum
4		90 MHz		90 MHz	L102 for maximum
5		106 MHz		106 Mhz	CT-1 for maximum
6	Repeat steps 1 ~ 4.				
7	Check overall response curve and repeat above steps as necessary to obtain maximum sensitivity.				

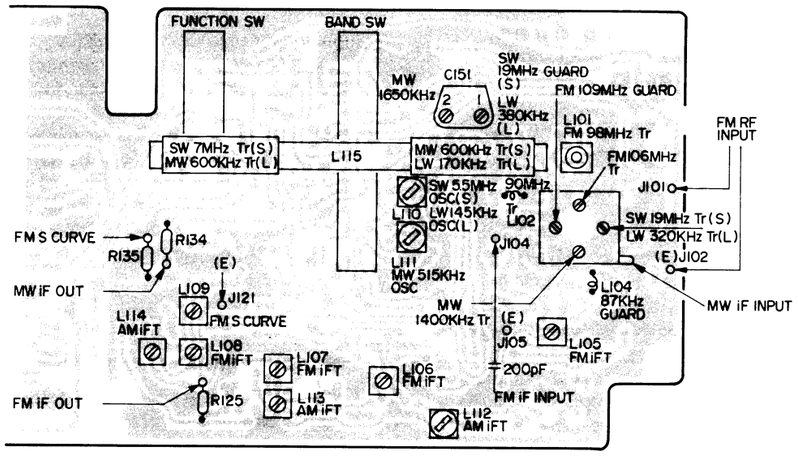
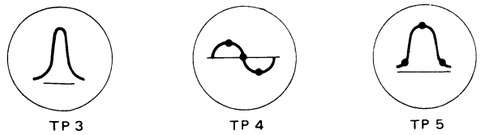


Figure 12. Tuner P.W. Board Adjusting Points

WAVE FORM



	BAND	TRACKING POINTS
FM	87~109MHz	90MHz, 98MHz, 106MHz
MW	515~1650kHz	600kHz, 1400kHz
LW	145~380kHz	170kHz, 320kHz
SW	5.5~19MHz	7MHz, 19MHz

6.2 AM (MW, SW, LW) ALIGNMENT PROCEDURES

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Dial Setting of the Unit	Adjustment
	AM IF ALIGNMENT (BAND switch in AM(MW) position)				
1	Sweep generator to TP6 Ground J105	455 kHz Marker	Oscilloscope to TP5	Quiet point on band	L112, L113, L114 for maximum and symmetric response
2	RF generator to a test loop or a short wire placed near the ferrite-rod AM antenna	515 kHz	VTVM to output terminal	515 kHz with tuning gang, closed	L111 for maximum
3		1,650 kHz		1,650 kHz with tuning gang, open	C151-2 for maximum
4	Repeat steps 2 and 3.				
5	RF generator to a test loop or a short wire placed near the ferrite-rod AM antenna	600 kHz	VTVM to output terminal	600 kHz	L115 for maximum
6		1,400 kHz		1,400 kHz	CT-4 for maximum
7	Repeat steps 1 ~ 4 as necessary to obtain maximum sensitivity.				

Step	Signal Source Connection	Signal Frequency	Indicator Connection	Dial Setting of the Unit	Adjustment
	SW ALIGNMENT (Set the BAND switch in position SW.)				
1	RF generator to a test loop or a short wire placed near the ferrite-rod antenna	5.5 MHz	VTVM to output terminal	5.5 MHz tuning gang closed	L110 for maximum
2		19 MHz		19 MHz tuning gang open	C151-1 for maximum
3	Repeat steps 1 and 2.				
4	RF generator to a test loop or a short wire placed near the ferrite-rod antenna	7 MHz	VTVM to output terminal	7 MHz	L115 for maximum
5		19 MHz (16 MHz)		19 MHz (16 MHz)	CT-3 for maximum
6	Repeat steps (4, 5) as necessary to obtain maximum sensitivity.				
	LW ALIGNMENT (Set the BAND switch in position LW.)				
1	RF generator to a test loop or a short wire placed near the ferrite-rod antenna	145 kHz	VTVM to output terminal	145 kHz tuning gang closed	L110 for maximum
2		380 kHz		380 kHz tuning gang closed	C151-1 for maximum
3	Repeat steps 1 and 2.				
4	RF generator to a test loop or a short wire placed near the ferrite-rod antenna	170 kHz	VTVM to output terminal	170 kHz	L115 for maximum
5		320 kHz		320 kHz	CT-3 for maximum
6	Repeat steps (4, 5) as necessary to obtain maximum sensitivity.				

7. MEASUREMENT INSTRUCTIONS

7-A TUNER/FM

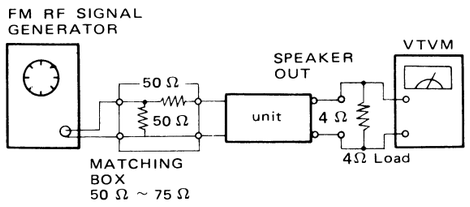
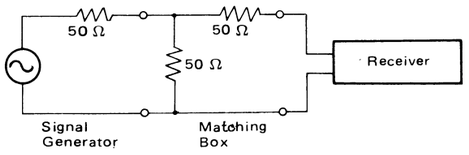


Figure 13.

7A-1 To feed input signal:

Use an FM signal generator of 50 Ω output impedance. The antenna impedance of receiver is 75 Ω unbalanced.



7A-2 Tuning

Although the point of maximum S/N, maximum output or minimum distortion is generally considered to be the tuned point, the point of maximum output should be regarded as the tuned point unless otherwise specified.

7A-3 Frequency Range

Frequency range should be checked at 1 mV input, 400 Hz 22.5 kHz deviation and 50 mW (0.45 V) output. First of all, set the tuning knob to the minimum frequency and then tune in the frequency of the signal generator to the frequency of the receiver. Measure the frequency of the signal generator. Repeat it with the tuning knob set the maximum frequency. At that time, check to be sure that a minimum frequency is lower than 88 MHz (lower than 87.5 MHz for the N version) and that a maximum frequency is higher than 108 MHz. If out of specification adjust the frequencies in accordance with the alignment procedure of 6.1 on page 9.

7A-4 Sensitivity for Standard Output

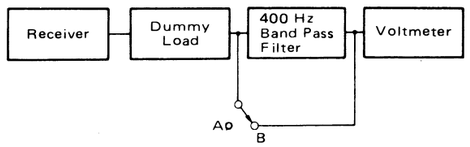
This sensitivity is measured under the 400 Hz 22.5 kHz deviation and 50 mW (0.45 V) output. The volume control should be set to the maximum position. Measure the minimum input signal necessary to obtain the 50 mW (0.45 V) output at 90 MHz, 98 MHz and 106 MHz. The unit of sensitivity is "μV". If the maximum sensitivity exceeds 6 μV at each test frequency at that time, perform adjustment in accordance with the alignment procedure of 6.1 on page 9.

7A-5 Sensitivity for 30 dB S/N

This sensitivity is measured under the 400 Hz 22.5 kHz deviation and 50 mW (0.45 V) output. Measure the minimum input signal necessary to obtain the 50 mW (0.45 V) output of 30 dB S/N at each test frequency. In measurement, increase the input signal with the output maintained at the 50 mW (0.45 V) output by the volume control and read the S/N in the process of the increase of input. The unit of sensitivity is "μV". At the time, check to make sure that sensitivity is lower than 10 μV at each test frequency.

7A-6 S/N Ratio with 1 mV Input

S/N is the voltage ratio between the receiver output of Standard modulated carrier (400 Hz 22.5 kHz deviation) and that of non-modulated carrier.
The measurement of S/N is performed as follows: In the test arrangement below, set the switch to "A" under the standard modulation condition and adjust so that output can be obtained. Next, set the switch to "B" and at the same time set the signal generator to the non-modulated mode. Obtain the ratio from the voltages indicated on the voltmeter. The specified 400 Hz band pass filter should be used unless an adverse effect is expected. Unless otherwise specified, hums should be eliminated.



Set the receiver in 98 MHz under 1 mV 400 Hz 22.5 kHz deviation. Tune in the receiver to the conditions. Maintain the output at 50 mW (0.45 V) output and then measure the S/N. The measured value is expressed in "dB". At that time, check to be sure that a measured value is higher than 50 dB on DC and higher than 45 dB on AC.

7-B TUNER/AM (MW/SW/LW)

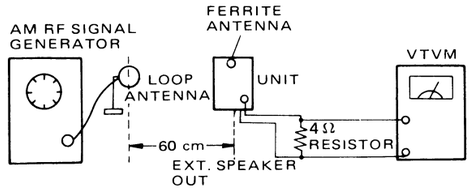


Figure 14.

7B-1 To Feed Input Signal

Use an AM signal generator having 50 Ω of output impedance and the loop antenna MLA-1001 (or MLA-1001B) manufactured by Meguro Denpa Co. The loop antenna should be positioned in such a way that the face of it is vertical with respect to the core antenna of the receiver and the distance between the centers is 60 cm. The input signal should be 26 dB down below the reading on the signal generator and be expressed in "μV/m".

7B-2 Tuning

Normally, a tuned point is a point where maximum output is obtained under 400 Hz 30% modulation condition. However, the following method is used to determine the tuned point for particular purposes:
Tune in the receiver at the standard input and set the modulation frequency to more than 3000 Hz. Sift the frequency of the signal generator up and down and two peaks will be observed in the output. Adjust the receiver to the dip between the peaks.

7B-3 Frequency Range

Frequency range should be checked at the standard input, standard modulation and standard output. First of all, set the tuning knob to the minimum frequency and then tune in the frequency of the signal generator to the frequency of the receiver. Measure the frequency of the signal generator. Repeat it with the tuning knob set to the maximum frequency. At that time, check to be sure that a minimum frequency is lower than 525 kHz and that a maximum frequency is higher than 1605 kHz. If out of specification, adjust the frequencies in accordance with the alignment procedure of 6.2 on page 10.

7B-4 Sensitivity for Standard Output (MW)

The measurement should be made at 400 Hz 30% modulation and 50 mW (0.45 V) output. With the volume control set to the maximum position, measure the minimum input signal for 50 mW through 8 ohm dummy load at 600 kHz, 1000 kHz & 1400 kHz. The measured value is expressed in "μV/m". At that time, check to be sure that measured values are lower than 650 μV/m at 600 kHz, lower than 450 μV/m at 1400 kHz. If out of specification, adjust the values in accordance with the alignment procedure of 6.2 on page 10.

7B-5 Sensitivity for Standard Output (SW)

The measurement should be made at 400 Hz 30% modulation and 50 mW (0.45 V) output. With the volume control set to the maximum position, measure the minimum input signal for 50 mW through 8 ohm dummy load at 7 MHz, 10 MHz & 16 MHz. The measured value is expressed in "μV/m". At that time, check to be sure that measured values are lower than 500 μV/m at 7 MHz, lower than 400 μV/m at 16 MHz. If out of specifications, adjust the values in accordance with the alignment procedure of 6.2 on page 10.

7B-6 Sensitivity for Standard Output (LW)

The measurement should be made at 400 Hz 30% modulation and 50 mW (0.45 V) output. With the volume control set to the maximum position, measure the minimum input signal for 50 mW through 8 ohm dummy load at 170 kHz, 250 kHz & 320 kHz. The measured value is expressed in "μV/m". At that time, check to be sure that measured values are lower than 1000 μV/m at 170 kHz, lower than 800 μV/m at 320 kHz. If out of specifications, adjust the values in accordance with the alignment procedure of 6.2 on page 10.

7B-7 Sensitivity for 20 dB S/N (MW)

This sensitivity is measured under 400 Hz 30% modulation and 50 mW (0.45 V) through 8 ohm dummy load at 600 kHz, 1000 kHz & 1400 kHz. Measure the minimum input signal necessary to obtain the 50 mW (0.45 V) output of 20 dB S/N at each test frequency. In measurement, increase the input signal with the output maintained at 50 mW (0.45 V) by the volume control and read the S/N in the process of the increase of input. The unit of sensitivity is "μV/m". At that time, check to make sure that sensitivity is 700 μV/m at each test frequency.

7B-8 Sensitivity for 20 dB S/N (SW)

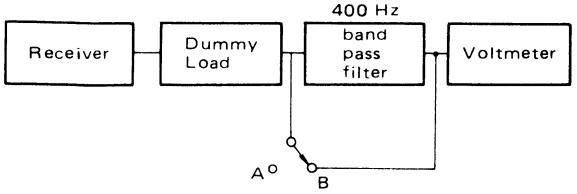
This sensitivity is measured under 400 Hz 30% modulation and 50 mW (0.45 V) through 8 ohm dummy load at 7 MHz, 10 MHz & 16 MHz. Measure the minimum input signal necessary to obtain the 50 mW (0.45 V) output of 20 dB S/N at each test frequency. In measurement, increase the input signal with the output maintained at 50 mW (0.45 V) by the volume control and read the S/N in the process of the increase of input. The unit of sensitivity is "μV/m". At that time, check to make sure that sensitivity is 600 μV/m at each test frequency.

7B-9 Sensitivity for 20 dB S/N (LW)

This sensitivity is measured under 400 Hz 30% modulation and 50 mW (0.45 V) through 8 ohm dummy load at 170 kHz, 250 kHz & 320 kHz. Measure the minimum input signal necessary to obtain the 50 mW (0.45 V) output of 20 dB S/N at each test frequency. In measurement, increase the input isgnal with the output maintained at 50 mW (0.45 V) by the volume control and read the S/N in the process of the increase of input. The unit of sensitivity is "μV/m". At that time, check to make sure that sensitivity is 1200 μV/m at each test frequency.

7B-10 S/N Ratio

S/N is the voltage ratio between the receiver output of 400 Hz 30% modulated carrier and that of non-modulated carrier. It is expressed in "dB". The measurement of S/N is performed as follows:
In the test arrangement below, set the switch to "A" under the 400 Hz 30% modulation condition and adjust so that 50 mW (0.45 V) output can be obtained. Next, set the switch to "B" and at the same time set the signal generator to the non-modulated mode. Obtain the ratio from the voltages indicated on the voltmeter. The specified 400 Hz band pass filter should be used unless an adverse effect is expected. Unless otherwise specified, hums should be eliminated.



Set the receiver in 1000 kHz under 5 mV 400 Hz 22.5 kHz deviation. Tune in the receiver to the conditions. Maintain the output at 50 mW (0.45 V) output and then measure the S/N. The measured value is expressed in "dB". At that time, check to be sure that a measured value is higher than 35 dB on DC and higher than 35 dB on AC.

8. SERVICE GUIDE

8.1 BATTERY CHECK

When loading the batteries in the CR-1053L/S battery compartment, check to insure that the power voltage is higher than 4.5 V.

8.2 BATTERY POLARITY

Wrong battery polarity, occurring when inserting the batteries, may damage the motor and transistors. Be careful!

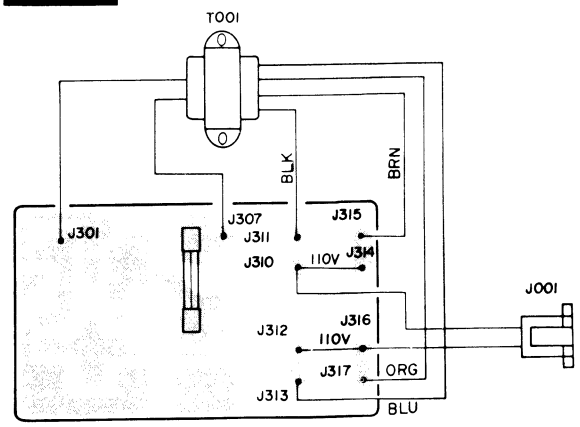
8.3 HEAD CONTAMINATION

Tape tips and dust contaminating the head slits deteriorates the sound volume and tone quality. To remove the contaminating materials, wipe the head slits with soft cloth containing alcohol or carbon tetrachloride.

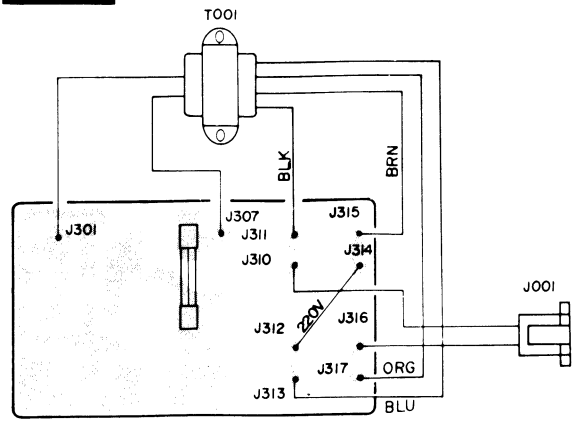
8.4 CHANGE OF POWER TRANSFORMER PRIMARY VOLTAGE (FOR N VERSION ONLY)

The CR-1053L is wired for 220 V line voltage. The modification of power supply voltage to 110 V will be made according to the color-code shown on the power supply unit board.

110V



220V



- **CR-1053S ONLY**

Voltage of this unit is changed to 110 V ~ 130 V or 220 V ~ 240 V by the switch S003 in the battery case.

Cautions for Voltage and Current Measurements

(1) When measuring the voltage at any point of the CR-1053L/S electrical circuits, no signal should be fed in the Tape Recorder, because the output stage comprises the B-class push-pull circuit and because the voltage under measurement varies with the input signal if applied.

(2) The voltage values indicated on the schematic diagram for the CR1053L/S are the ones measured with a 50 kΩ/V circuit tester set to the 6 V range for higher than 1 V and to 1.2 V range for lower than 1 V and with no input signal applied. Note that any actual voltage value, when measured, is allowed to be different by ±20% from the indicated value.

(3) Any transistor circuit is operated for a process by small voltages. Therefore, use a measuring instrument of high internal resistance and high input sensitivity for reducing the measurement error.

FTZ REGULATION

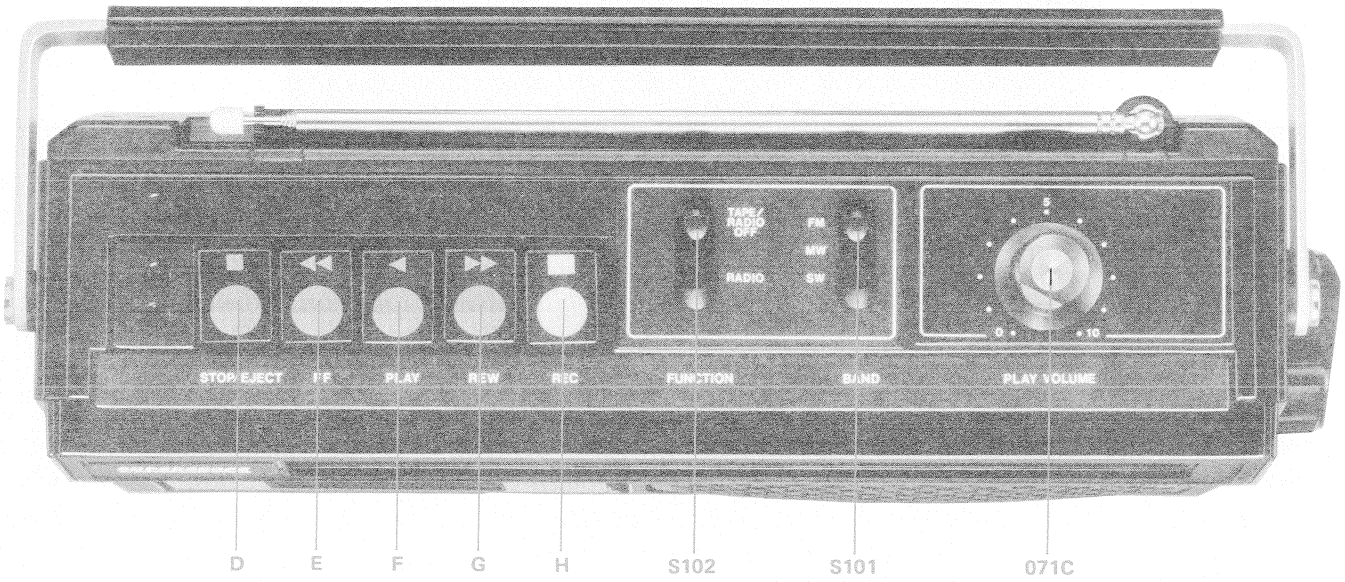
Instructions for the use in the range other than specified in FTZ codes

Achtung für die Leute, die in dem Gebiet wohnen, wo die FTZ-Bestimmungen vorherrschend sind.

Sollte das Gerät auch für Frequenzen auszerhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatorspule (in der Abbildung mit „FTZ" gekennzeichnet) so zu korrigieren, daß er den Bestimmungen entspricht.

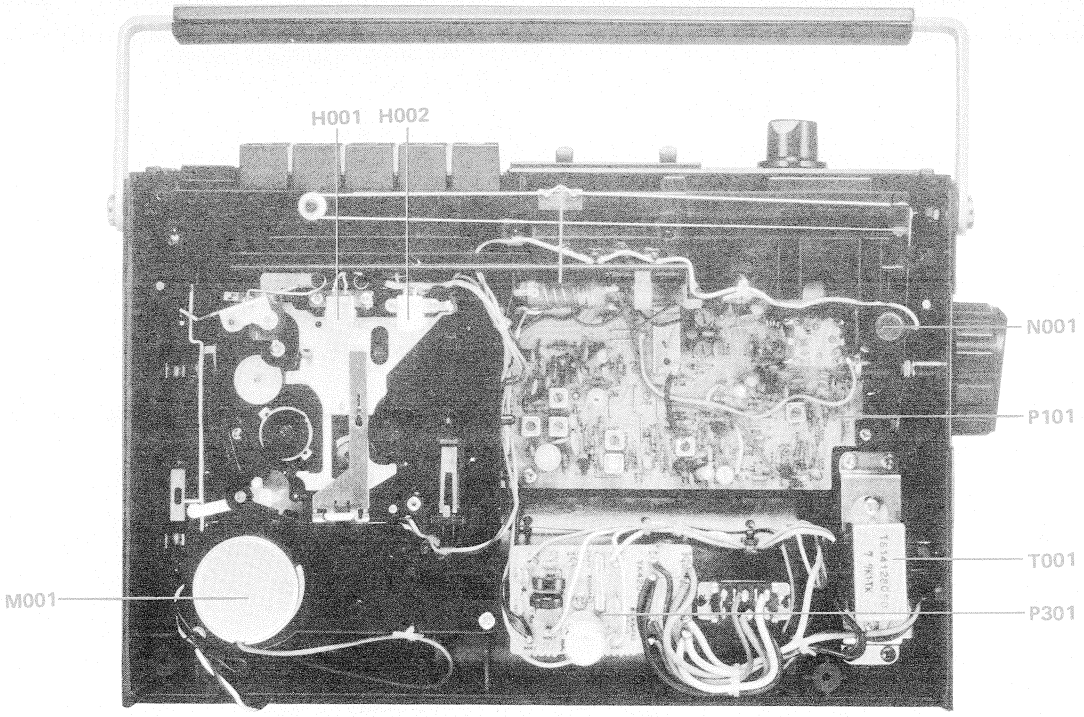
9. MAJOR PARTS LOCATIONS

- Top View



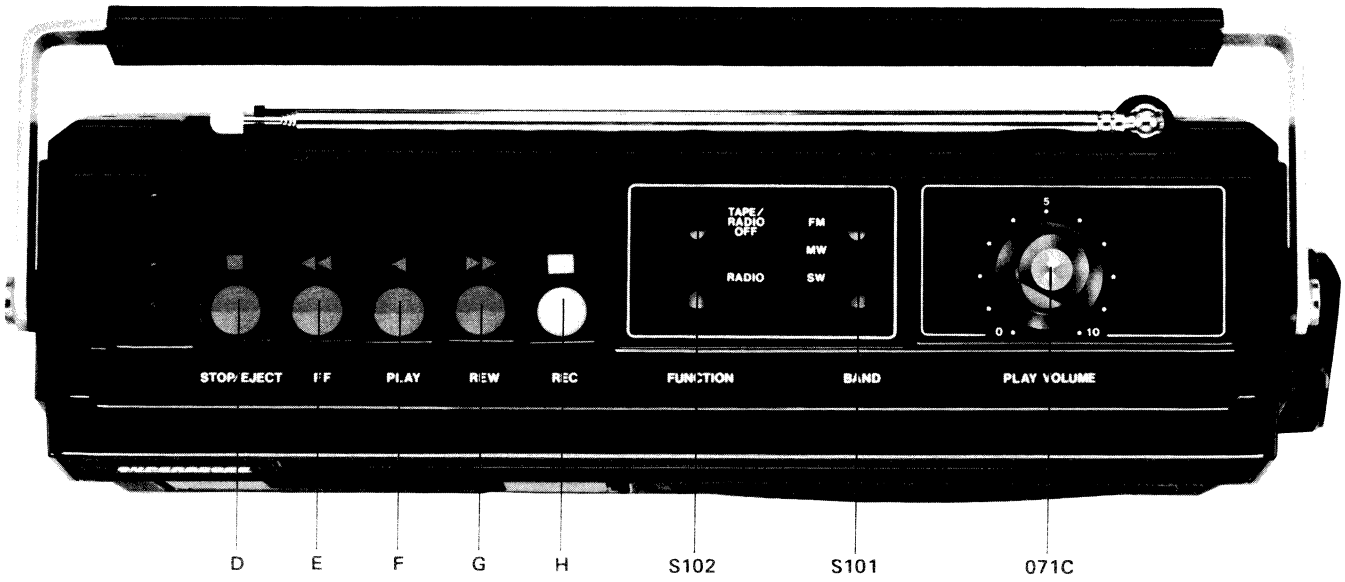
- Front View

- Fironi inside View

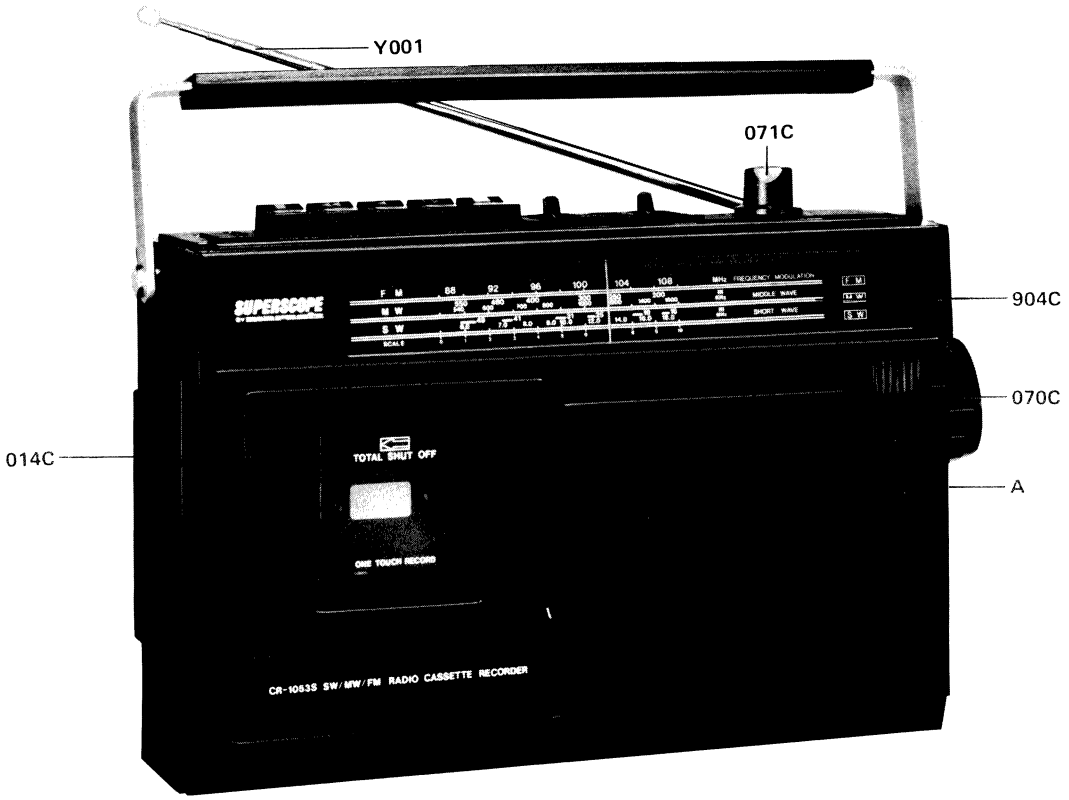


9. MAJOR PARTS LOCATIONS

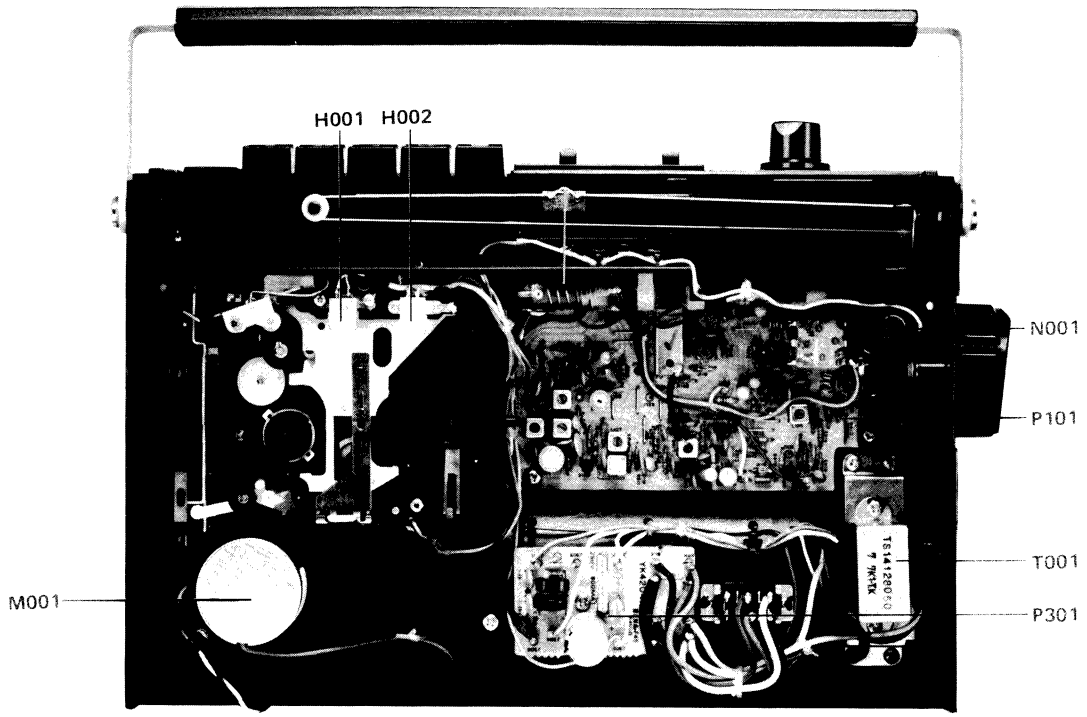
- Top View



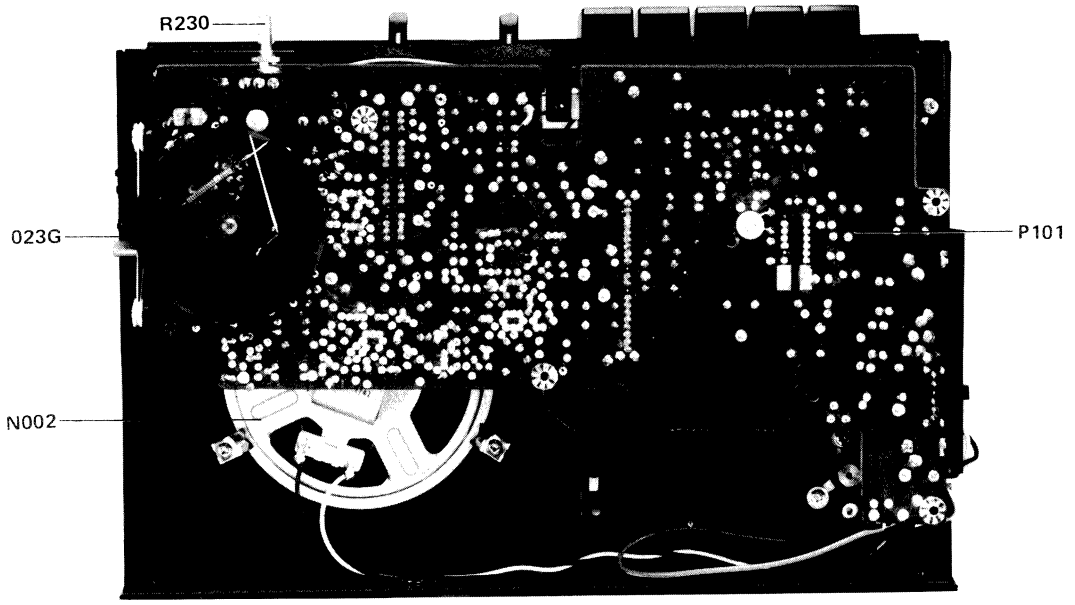
- Front View



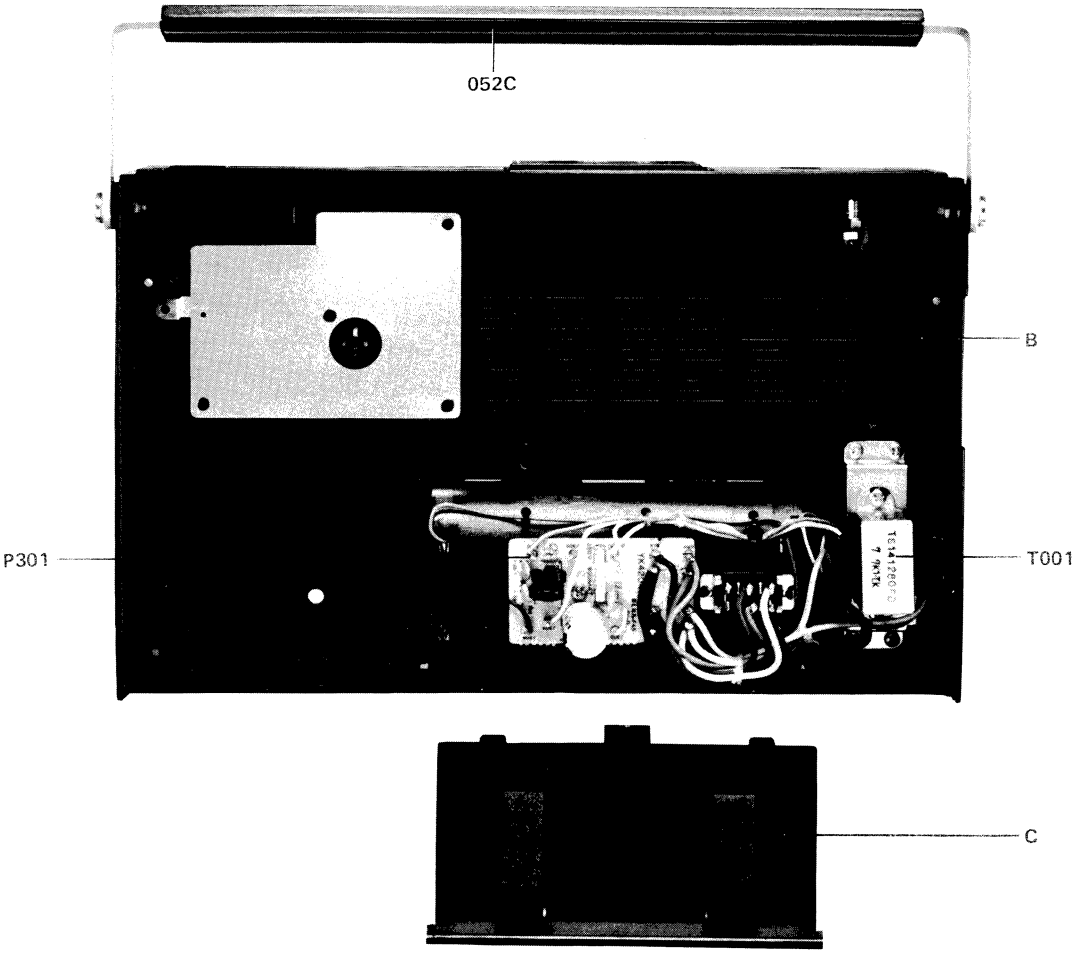
- Fironf inside View



- **Rear inside View**

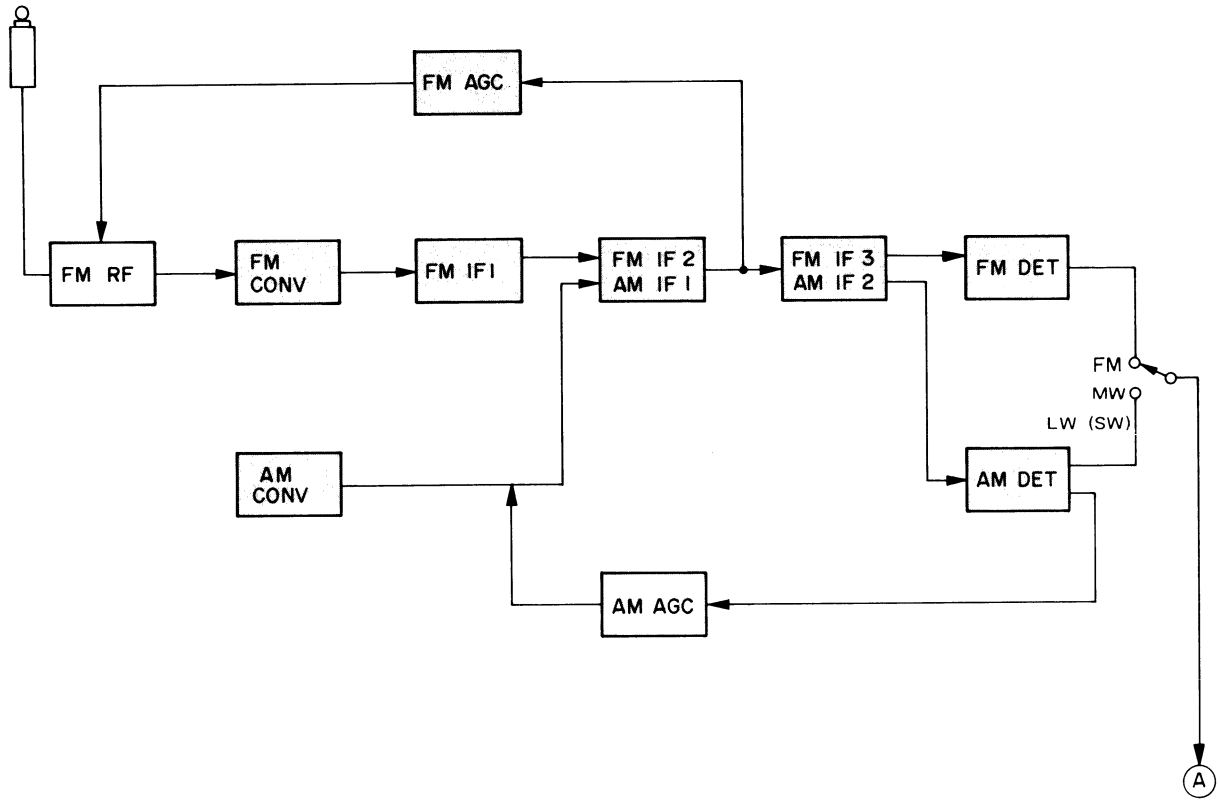


- **Cabinet Inside View**

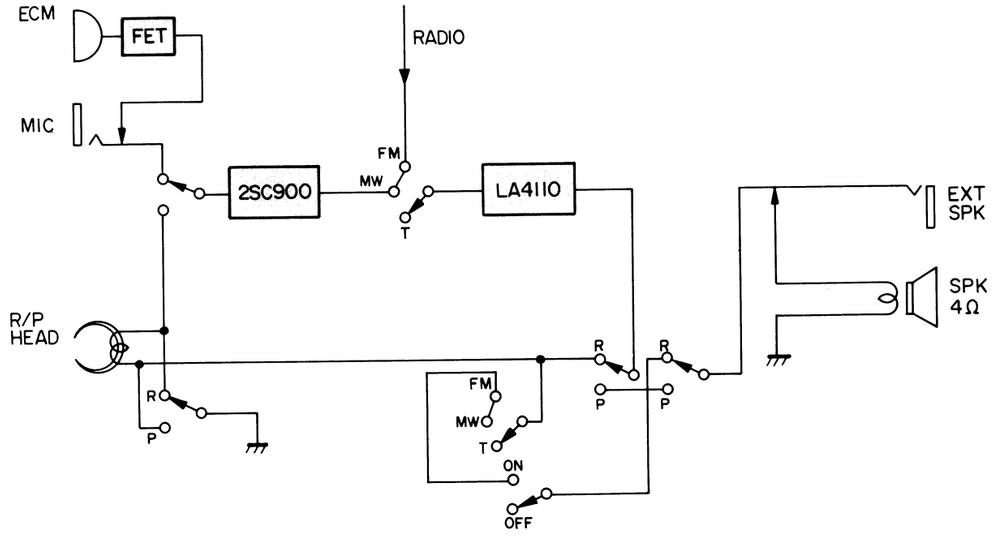


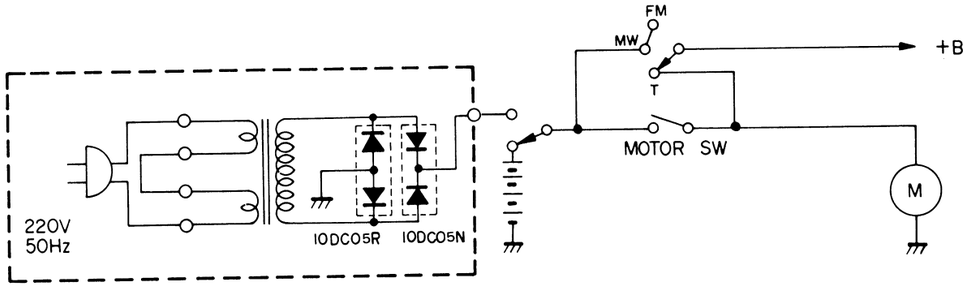
10. BLOCK DIAGRAM

- Tuner Section



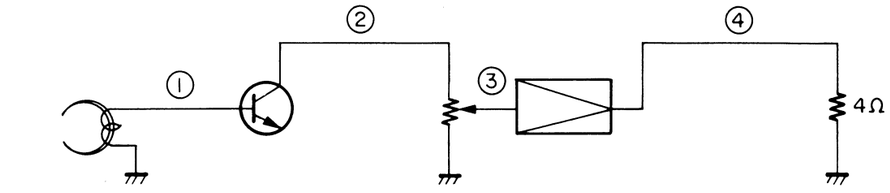
- Audio Section

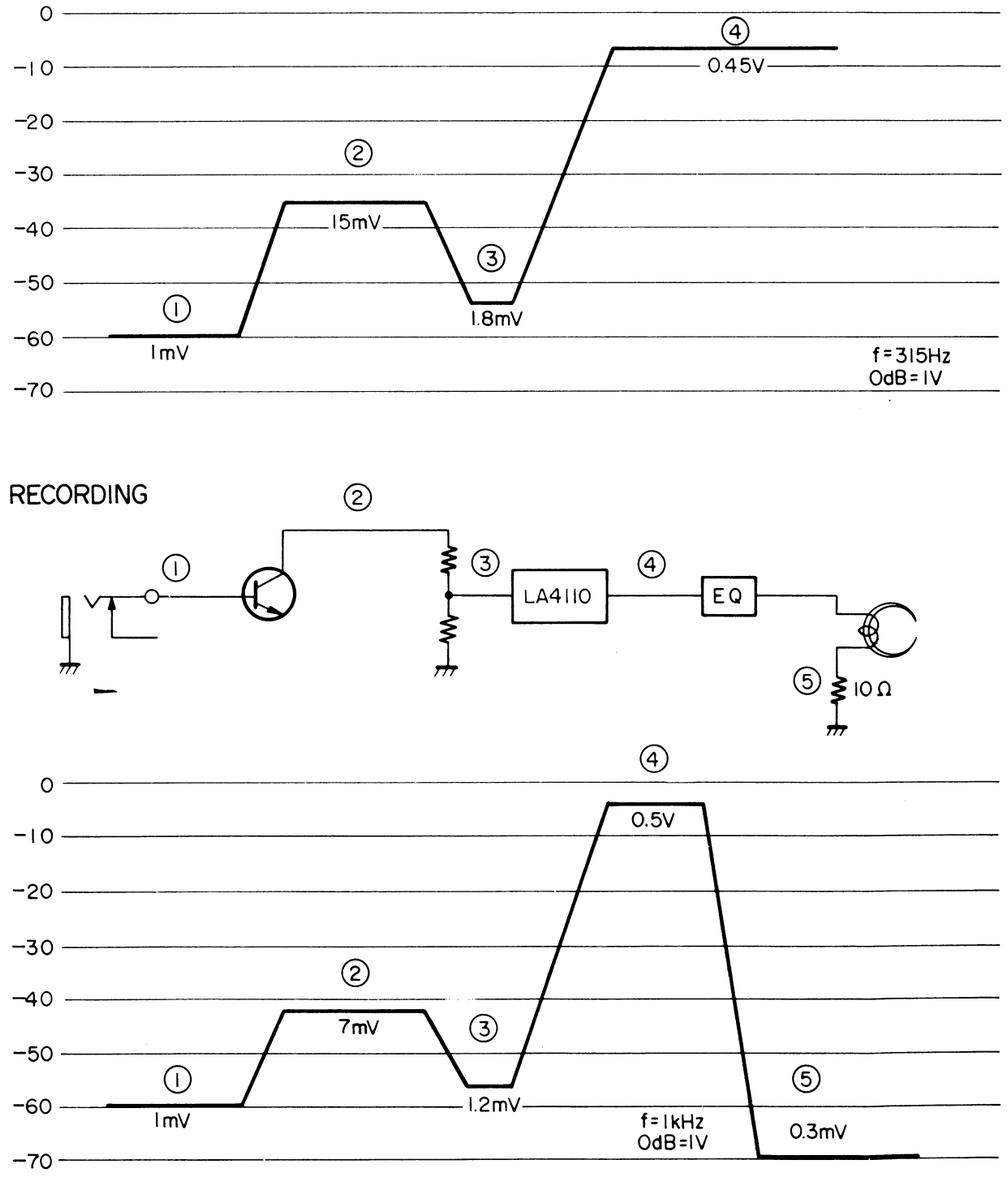




11. LEVEL DIAGRAM

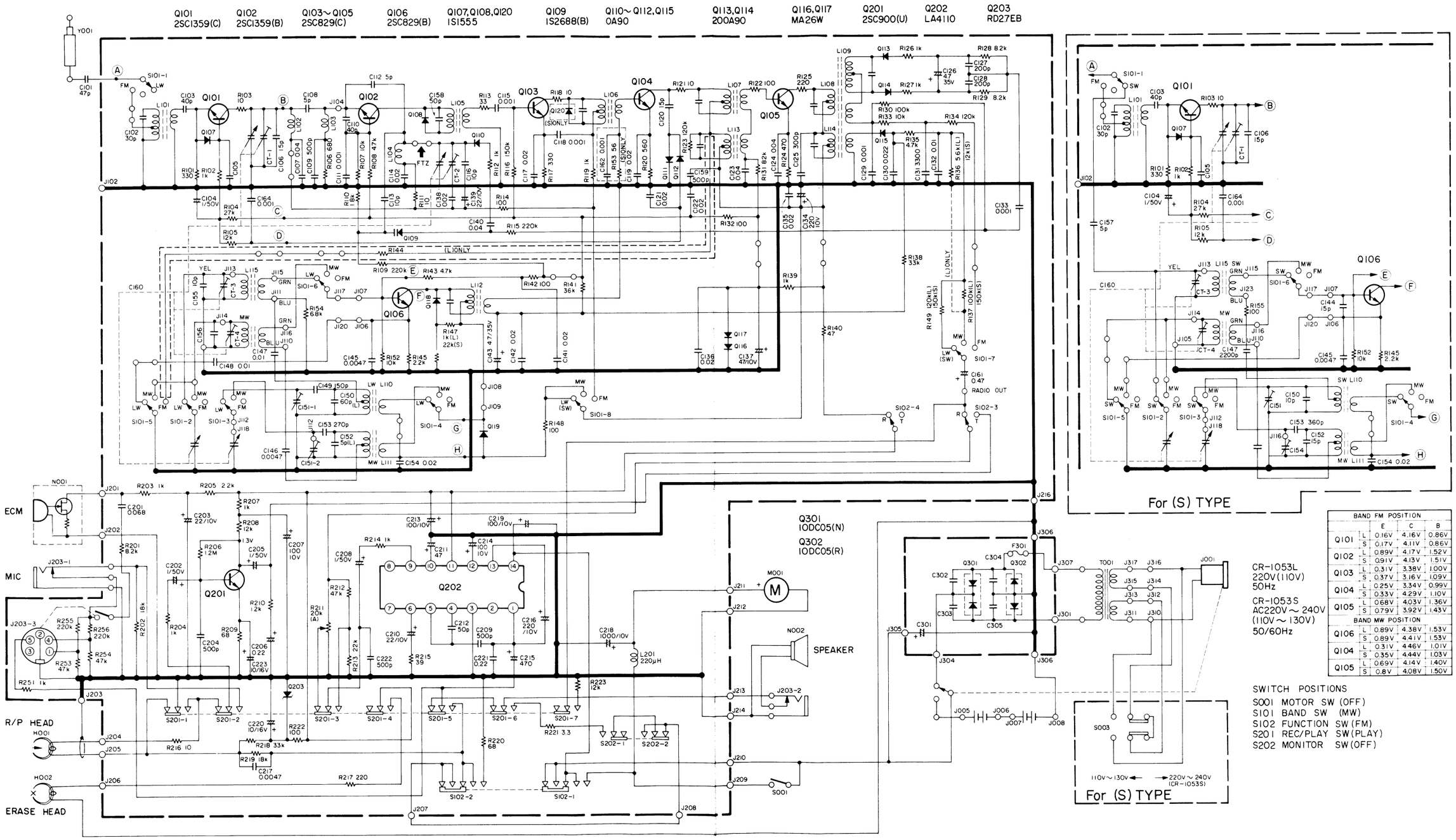
PLAYBACK





RECORDING

12. SCHEMATIC DIAGRAM



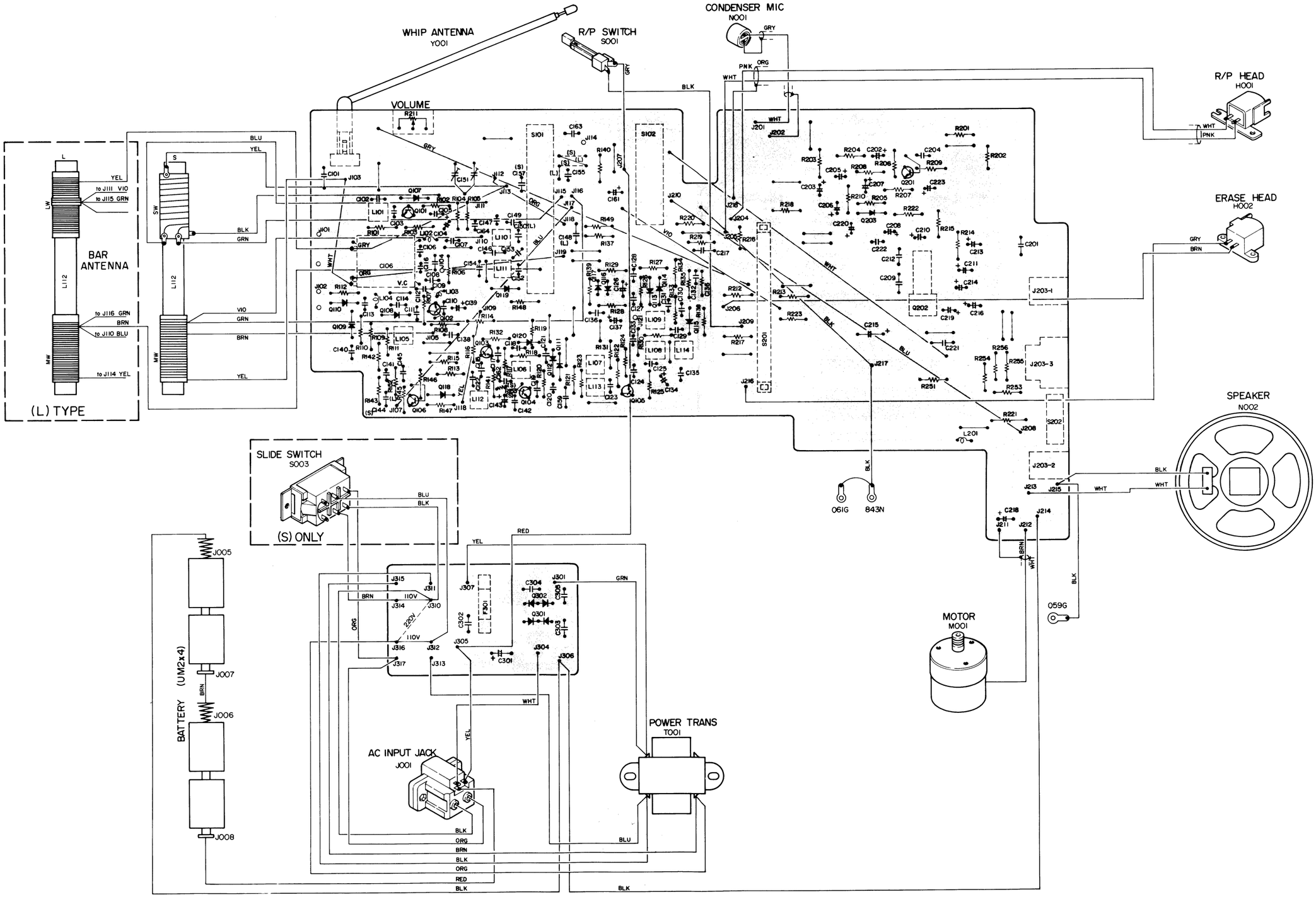
CR-1053L
220V(110V)
50Hz

CR-1053S
AC220V~240V
(110V~130V)
50/60Hz

BAND FM POSITION					
		E	C	B	
Q101	L	0.16V	4.16V	0.86V	
	S	0.17V	4.11V	0.86V	
Q102	L	0.89V	4.17V	1.52V	
	S	0.91V	4.13V	1.51V	
Q103	L	0.31V	3.38V	1.00V	
	S	0.37V	3.16V	1.09V	
Q104	L	0.25V	3.34V	0.99V	
	S	0.33V	4.29V	1.10V	
Q105	L	0.68V	4.03V	1.36V	
	S	0.79V	3.92V	1.43V	
BAND MW POSITION					
Q106	L	0.89V	4.38V	1.53V	
	S	0.89V	4.41V	1.53V	
Q104	L	0.31V	4.46V	1.01V	
	S	0.35V	4.44V	1.03V	
Q105	L	0.69V	4.14V	1.40V	
	S	0.8V	4.08V	1.50V	

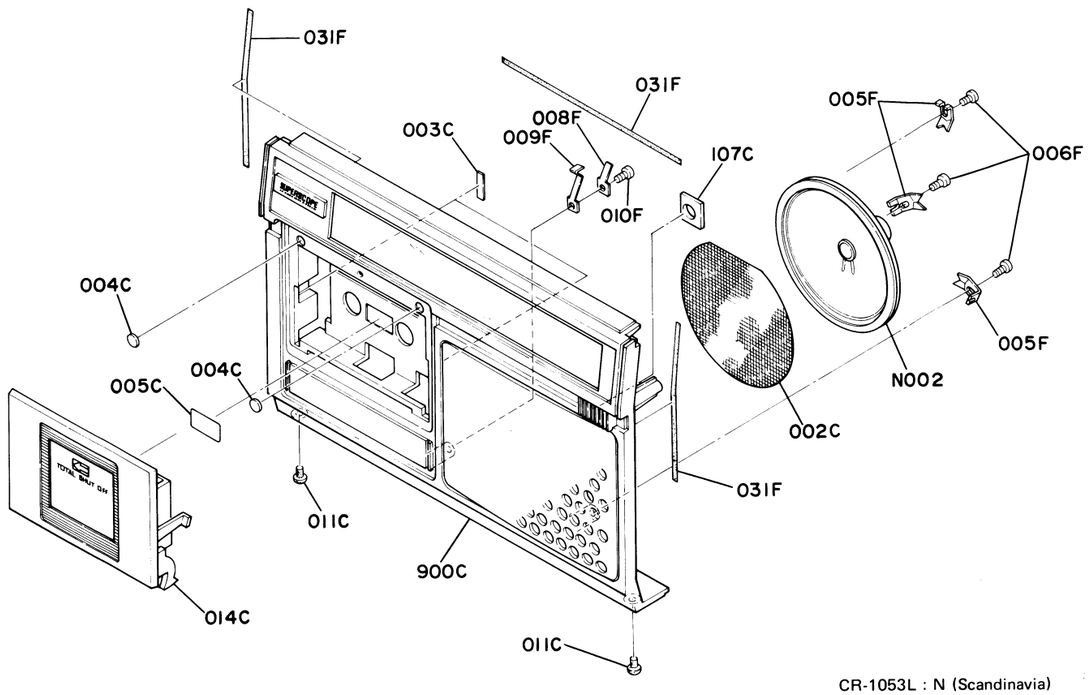
SWITCH POSITIONS
S001 MOTOR SW (OFF)
S101 BAND SW (MW)
S102 FUNCTION SW (FM)
S201 REC/PLAY SW (PLAY)
S202 MONITOR SW (OFF)

13. CIRCUIT BOARD DIAGRAM



14. EXPLODED VIEW AND PARTS LIST

● [C01-99] Front Case

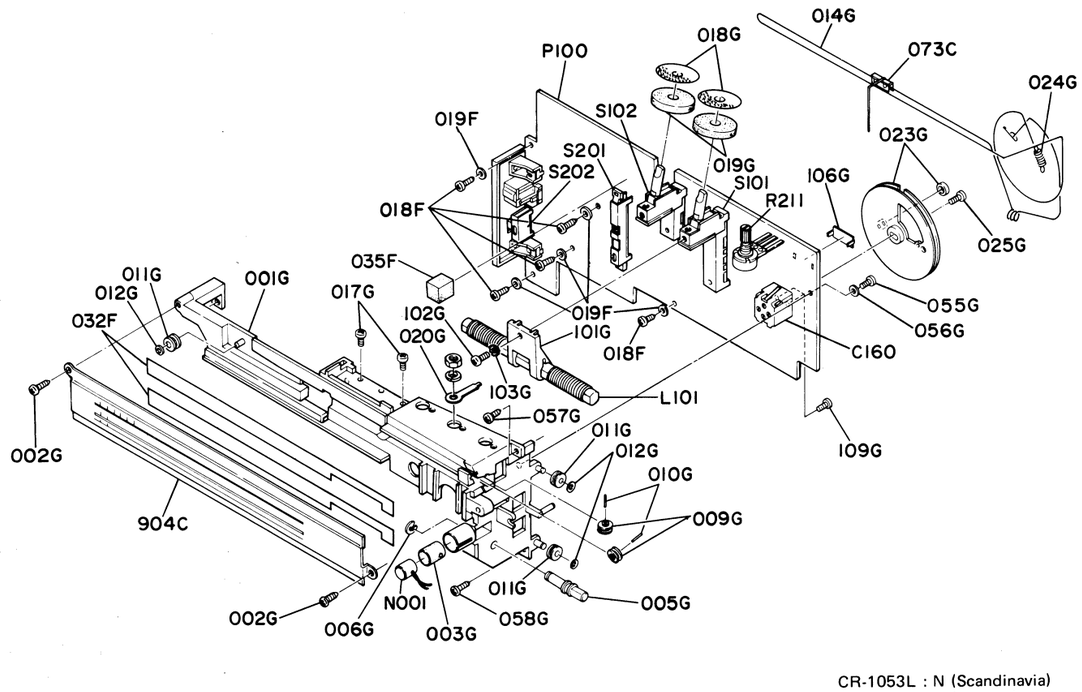


CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
*	1		4204064420	Case Assembly, (A, B, C)
*		1	4205064400	Case Assembly, (A, B, C)
A	1		4204064410	Case Assembly, Front
A		1	4205064410	Case Assembly, Front
002C	1	1	4202202012	Net
003C	2	2	3426056020	Buffer
004C	2	2	3412056062	Buffer
005C	1	1	3347274010	Reflector
011C	2	2	3441057010	Leg
107C	1	1	4202107010	Sheet
900C	1		4202064530	Case K
900C		1	4202064540	Case K

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
014C	1	1	4170064570	Case K, Cassette
005F	3	3	4170005010	Clampar
006F	3	3	51300308B0	P.H. TAP. Screw P3 x 8
008F	1	1	4170115033	Spring
009F	1	1	4170115010	Spring
010F	1	1	51300308B0	P.H. TAP. Screw P3 x 8
031F	3	3	4170107040	Sheet
N002	1	1	QK01001150	Speaker 4Ω

● [M01-99] Dial Operation Mechanism and P.W. Board for Tuner and Audio



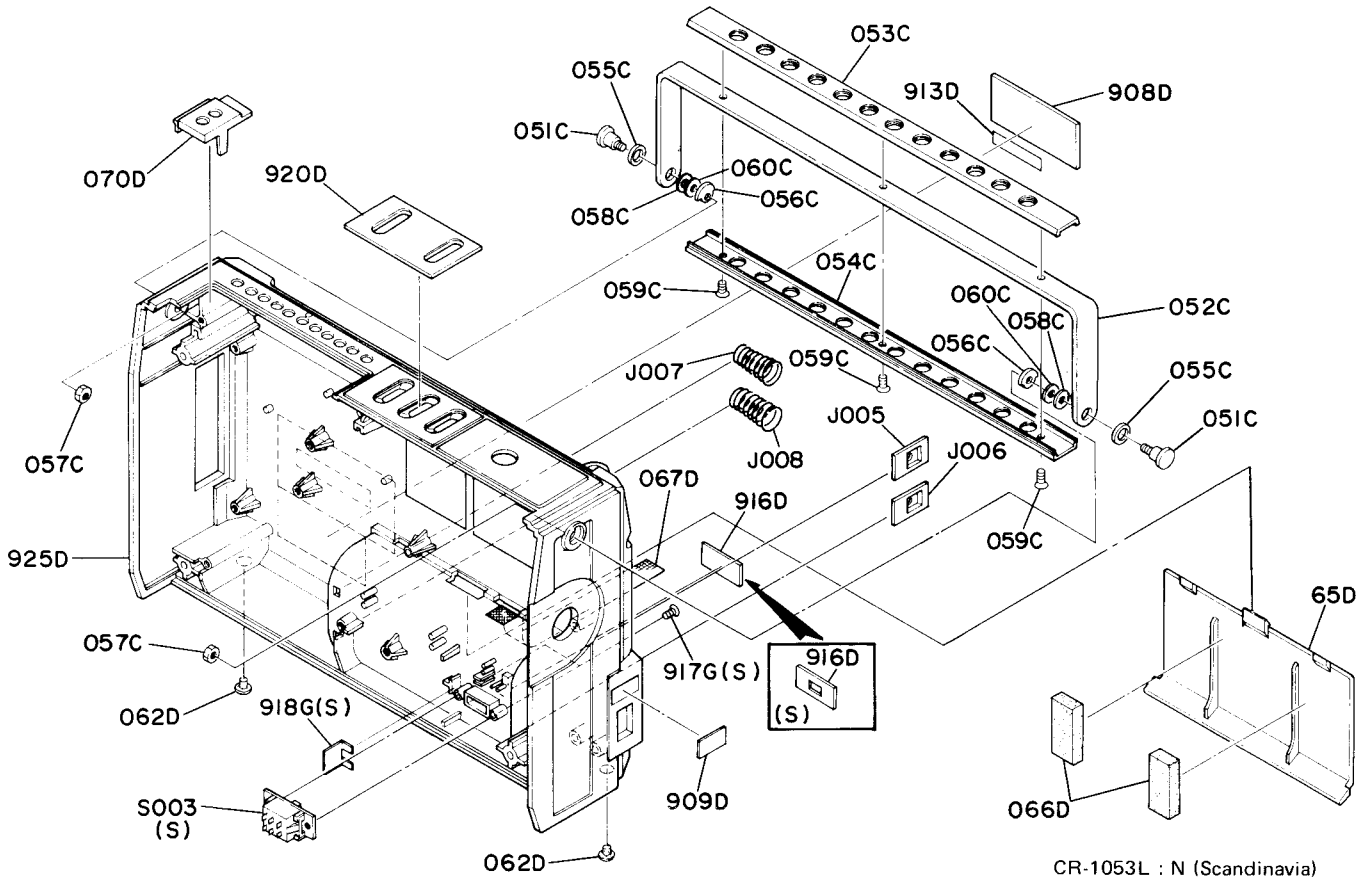
CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
001G	1	1	4170105013	Chassis
002G	2	2	51300306U0	P.H. TAP. Screw P3 x 6
003G	1	1	4170271032	Holder
005G	1	1	4170112020	Shaft
006G	1	1	64002500R0	RG Ring, E Type
009G	2	2	1283262010	Pulley
010G	2	2	4170112010	Shaft
011G	3	3	1271262010	Pulley
012G	3	3	54020201E0	Flat Washer, P.
014G	1	1	72060802A0	String
017G	2	2	51062606A0	P.H.M. Screw P2.6 x 6
018G	2	2	4170303020	Mask
019G	2	2	4202056010	Buffer
020G	1	1	4202005010	Clamper
023G	1	1	4170159010	Drum
024G	1	1	3021115010	Spring
025G	1	1	51102606A0	B.H.M. Screw B2.6 x 6
055G	1	1	51280308B0	B.H. TAP. Screw B3 x 8
056G	1	1	59030805P0	Washer
057G	1	1	51300310B0	P.H. TAP. Screw P3 x 10
058G	1	1	51300312B0	P.H. TAP. Screw P3 x 12
101G	1	1	4170271010	Holder
102G	1	1	51572608A0	P. TAPT. Screw P2.6 x 8
106G	1	1	4170123010	Contactor
109G	2	2	51062604A0	P.H.M. Screw P2.6 x 4
103G	1	1	54052600A0	T.L. Washer

CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
018F	5	5	51280308B0	B.H. TAP. Screw B3 x 8
019F	5	5	59030810P0	Washer
032F	2	2	4170107050	Sheet
035F	1	1	4170056020	Buffer
073C	1	1	4170103010	Pointer
904C	1		4204302012	Dial
904C		1	4205302013	Dial
P101	1	1	YK42041210	P.W. Board, Tuner, Audio
	1		ZZ42048210	P.W. Board Assembly
		1	ZZ42058210	P.W. Board Assembly
S101	1	1	SS08030140	Slide Switch Band
S102	1	1	SC04020110	Slide Switch Function
S201	1	1	SS07020010	Slide Switch R/P
S202	1	1	SS02020490	Slide Switch Monitor
C160	1		CP22400130	Variable Cap.
C160		1	CP22400200	Variable Cap.
R211	1	1	RK02030440	Variable Resist 20KΩ
L101	1	1	LA70238020	ANT. Coil, FM
N001	1	1	MS50000020	MIC. Unit

● [C02-99] Rear Case

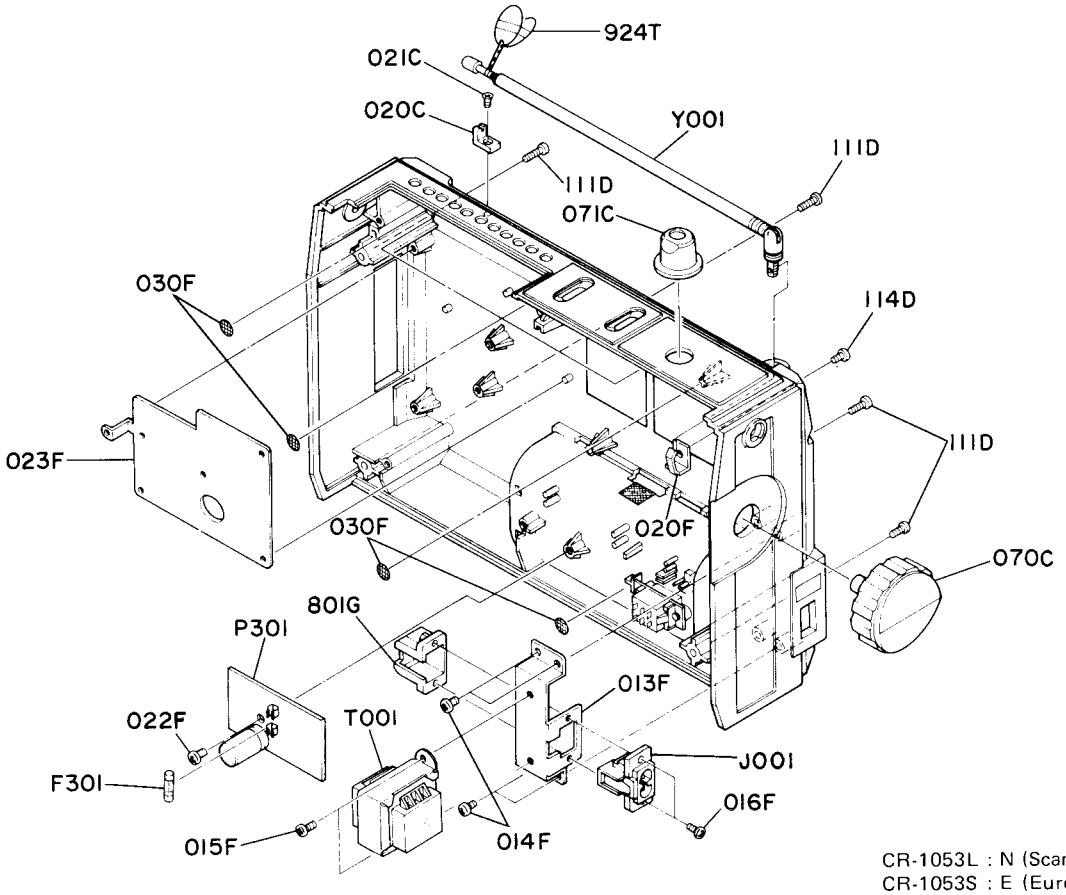


CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
B	1		4204257400	Lid Assembly, Rear
B		1	4205257400	Lid Assembly, Rear
051C	2	2	4202112012	Shaft
052C	1	1	4202253010	Handle
053C	1	1	4202053012	Cover
054C	1	1	4202053020	Cover
055C	2	2	59081202G9	Washer
056C	2	2	4202118020	Spacer
057C	2	2	53110403A9	Hexagon Nut
058C	2	2	59081602G9	Washer
059C	3	3	51500308U0	F.H. TAP. Screw F3 x 8
060C	2	2	54130800Q0	Washer
062D	2	2	3441057010	Leg
067D	1	1	3397007010	Strip
070D	1	1	4202053030	Cover
908D	1		4202265030	Indicator
908D		1	4203265010	Indicator
909D	1		4170265050	Indicator
909D		1	4174265032	Indicator

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
916D	1		4170053020	Cover
916D		1	4174265022	Indicator
917G		2	51040312A9	F.H.M. Screw F3 x 12
918G		1	4174120010	Insulator
920D	1		4202063042	Escutcheon
920D		1	4202063053	Escutcheon
925D	1	1	4202257502	Lid K
J005	1	1	YL12010150	Terminal (+)
J006	1	1	YL12010150	Terminal (+)
J007	1	1	YL11010293	Terminal (−)
J008	1	1	YL11010293	Terminal (−)
S003		1	SS02020480	Slide Switch
913D	1	1	9510911040	Label
C	1	1	4170257430	Lid Assembly, Battery
065D	1	1	4170257030	Lid
066D	1	1	3397056020	Buffer

• [P01-99] P.W. Board and General Parts

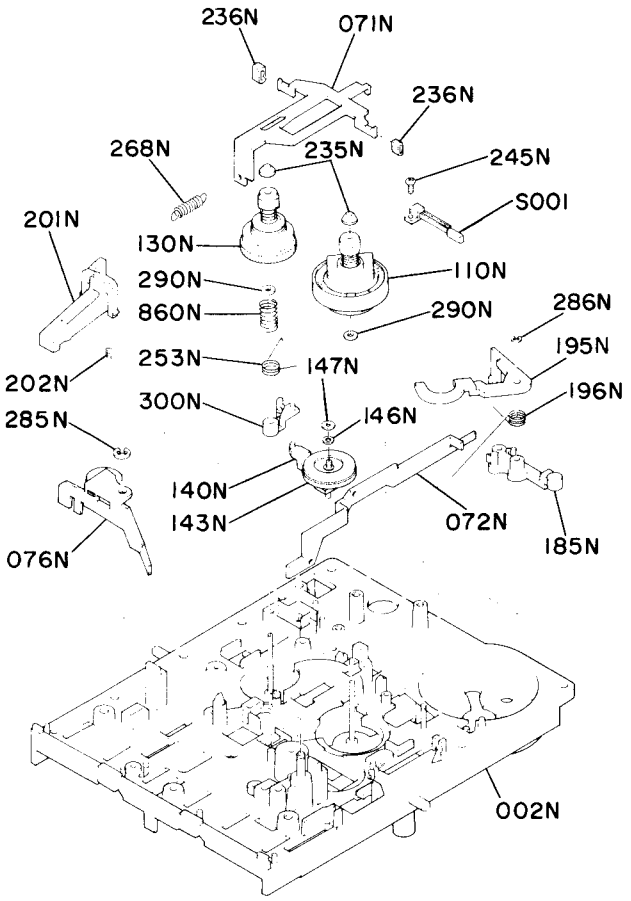


CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION	
020C	1	1	4170271020	Holder	
021C	1	1	51340308T0	F.H. TAP. Screw	F3 x 8
070C	1	1	4170154010	Knob	
071C	1	1	4170154023	Knob	
111D	4	4	51300312U0	P.H. TAP. Screw	P3 x 12
114D	1	1	5110030859	B.H.M. Screw	B3 x 8
013F	1	1	4170160010	Bracket	
014F	4	4	51280308B0	B.H. TAP. Screw	B3 x 8
015F	2	2	51100306A9	B.H.M. Screw	B3 x 6
016F	2	2	51102608A0	B.H.M. Screw	B2.6 x 8
020F	1	1	4170115020	Spring	
022F	1	1	51280308B0	B.H. TAP. Screw	B3 x 8
023F	1	1	4170109014	Shield	
030F	4	4	4170107030	Sheet	
801G	1	1	3370053010	Cover	
924T	1	1	9560000090	Hang Tag	

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
Y001	1	1	YR06080040	Whip Antenna
T001	1		TS14128030	Power Transf.
T001		1	TS14128050	Power Transf.
J001	1	1	YJ04000500	Jack, AC Inlet
F301	1	1	FS10080800	Fuse
P301	1	1	YK42041220	P.W. Board, Power Supply
		1	ZZ42048210	P.W. Board Assembly
	1		ZZ42048220	P.W. Board Assembly

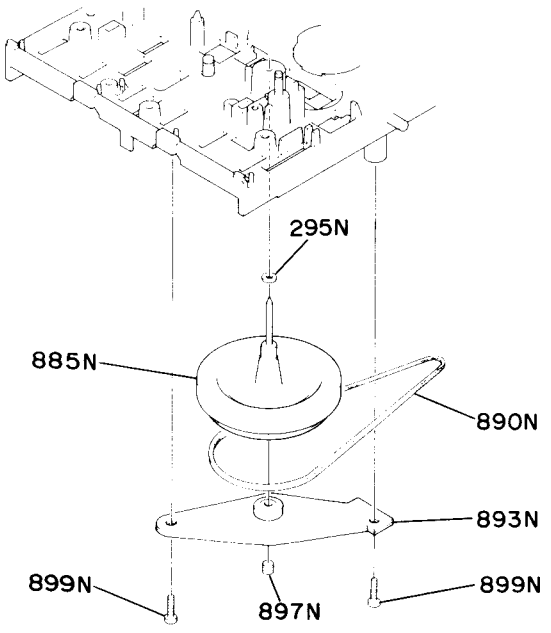
● [P02-99] Parts Assembled on the Top of the Chassis



CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

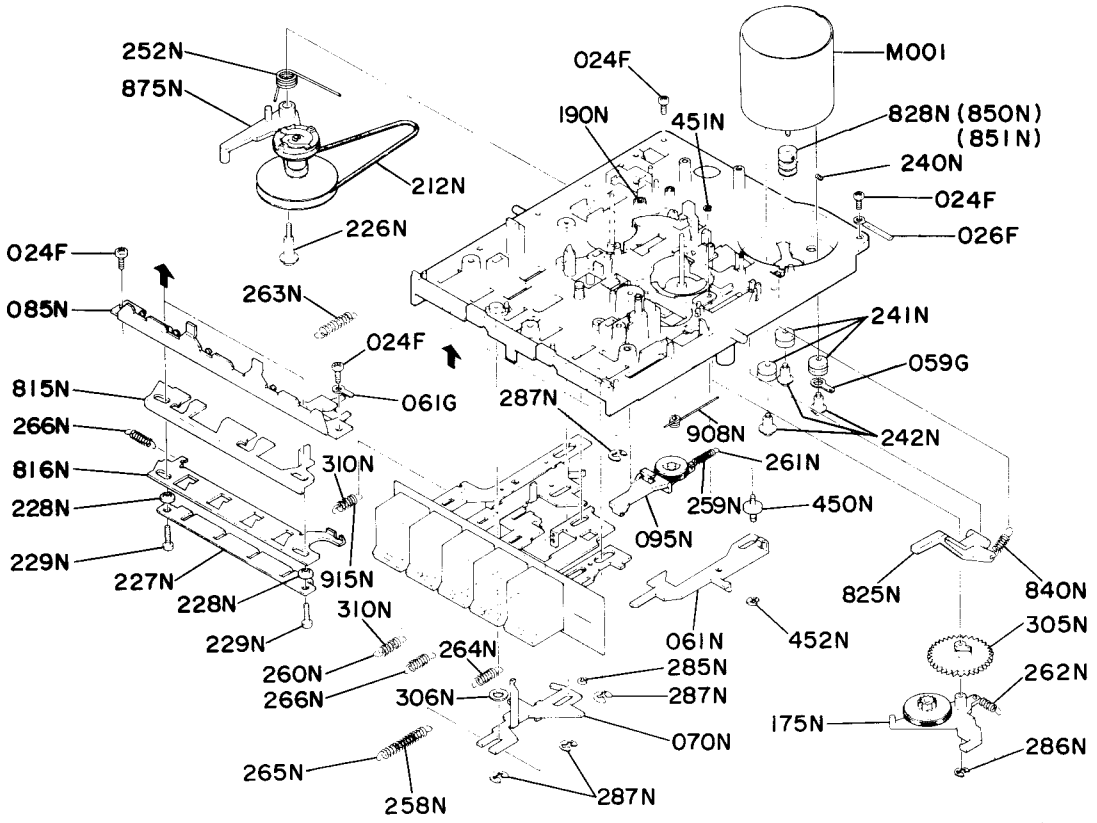
REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
002N	1	1	4367105700	Chassis
071N	1	1	4367354092	Lever
072N	1	1	4367354123	Lever
076N	1	1	4367002702	Arm Pinch Roller
110N	1	1	4367004705	Table Tack up Real
130N	1	1	4367004710	Table
140N	1	1	4367002730	Arm Assembly
143N	1	1	4367001512	Idler
146N	1	1	59020805G9	Washer
147N	1	1	4367118040	Spacer
185N	1	1	4367354773	Lever
195N	1	1	4367002054	Arm
196N	1	1	4367115130	Spring
201N	1	1	4367354083	Lever
202N	1	1	4367115070	Spring
235N	1	1	4367067010	Cap
236N	1	1	4367263010	Brake
245N	1	1	51382606P0	P.H. TAP. Screw P2.6 x 6
253N	1	1	4367115310	Spring
268N	1	1	4367115210	Spring
285N	1	1	64002500R0	RG Ring, E Type
286N	1	1	64001500R0	RG Ring, E Type
290N	2	2	59020402G9	Washer
300N	1	1	4367354110	Lever
860N	1	1	4367115230	Spring
S001	1	1	SM01010430	Mini Switch, For Motor

● [P03-99] Flywheel



REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
295N	1	1	59264702G9	Washer
885N	1	1	4367273500	Flywheel
890N	1	1	4367264012	Belt
893N	1	1	4367104704	Retainer
897N	1	1	3483164020	Adjuster
899N	2	2	51300310B0	P.H. TAP. Screw P3 x 10

● [P04-99] Parts Assembled on the Reverse of the Chassis

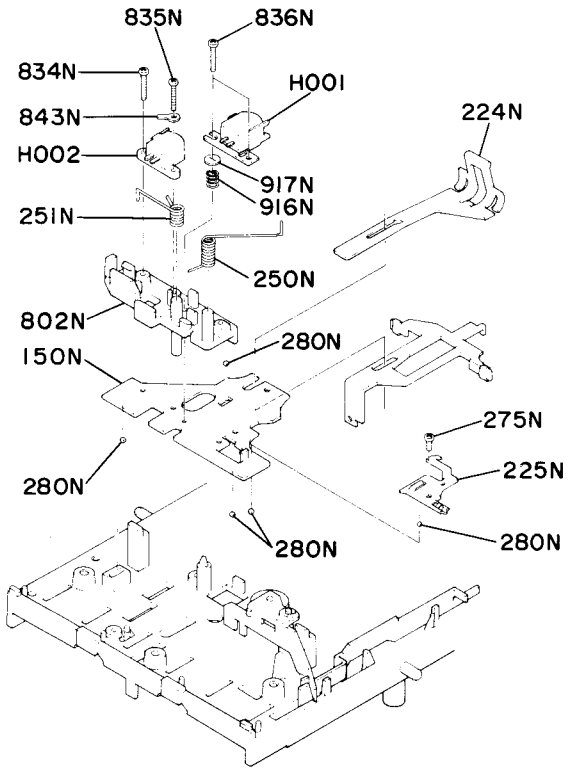


CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
061N	1	1	4367354070	Lever
070N	1	1	4367354064	Lever
085N	1	1	4367051700	Guide
095N	1	1	4367354760	Lever FF
175N	1	1	4367002725	Arm
212N	1	1	4367264033	Belt
226N	1	1	4367112180	Shaft
227N	1	1	4367051042	Guide
228N	2	2	4367055022	Collar
229N	2	2	51280312B0	B.H. TAP Screw B3 x 12
240N	1	1	51610205A0	Set Screw, F.P. 2 x 5
241N	3	3	4367259020	Bushing
242N	3	3	4367112150	Shaft
252N	1	1	4367115082	Spring
258N	1	1	4367056040	Buffer
259N	1	1	4367056030	Buffer
260N	1	1	4367115240	Spring
261N	1	1	4367115090	Spring
262N	1	1	4367115120	Spring
263N	1	1	4367115252	Spring
264N	1	1	4367115340	Spring
265N	1	1	4367115270	Spring
266N	2	2	4367115282	Spring
285N	1	1	64002500R0	RG Ring, E Type
286N	1	1	64001500R0	RG Ring, E Type

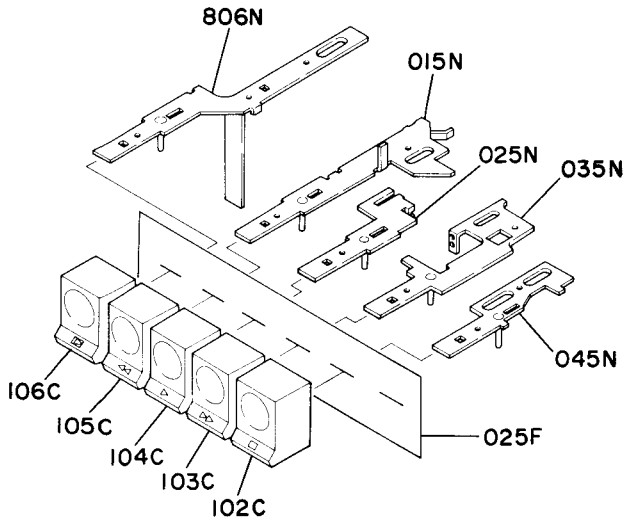
REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
287N	4	4	64000300R0	RG Ring, E Type
305N	1	1	4367058012	Gear
450N	1	1	4367112210	Shaft
451N	1	1	64001500R0	RG Ring, E Type
452N	1	1	64002500R0	RG Ring, E Type
815N	1	1	4367054040	Cam
816N	1	1	4367054050	Cam
825N	1	1	4367002110	Arm
840N	1	1	4367115290	Spring
850N	1	1	4367262040	Pulley, For Service +20%
828N	1	1	4367262020	Pulley, Standard
851N	1	1	4367262050	Pulley, For Service −20%
875N	1	1	4367061010	Clutch
908N	1	1	4380115082	Spring
915N	1	1	4367115282	Spring
024F	4	4	51280312B0	B.H. TAP. Screw B3 x 12
026F	1	1	1210005010	Clamper
M001	1	1	MM10600520	D.C. Motor Mecha. Gava
190N	1	1	4367118030	Spacer
306N	1	1	59046501G9	Washer
310N	2	2	4367056050	Buffer
059G	1	1	62041760W0	Lug
061G	1	1	62030039W0	Lug

● [P05-99] Head Chassis



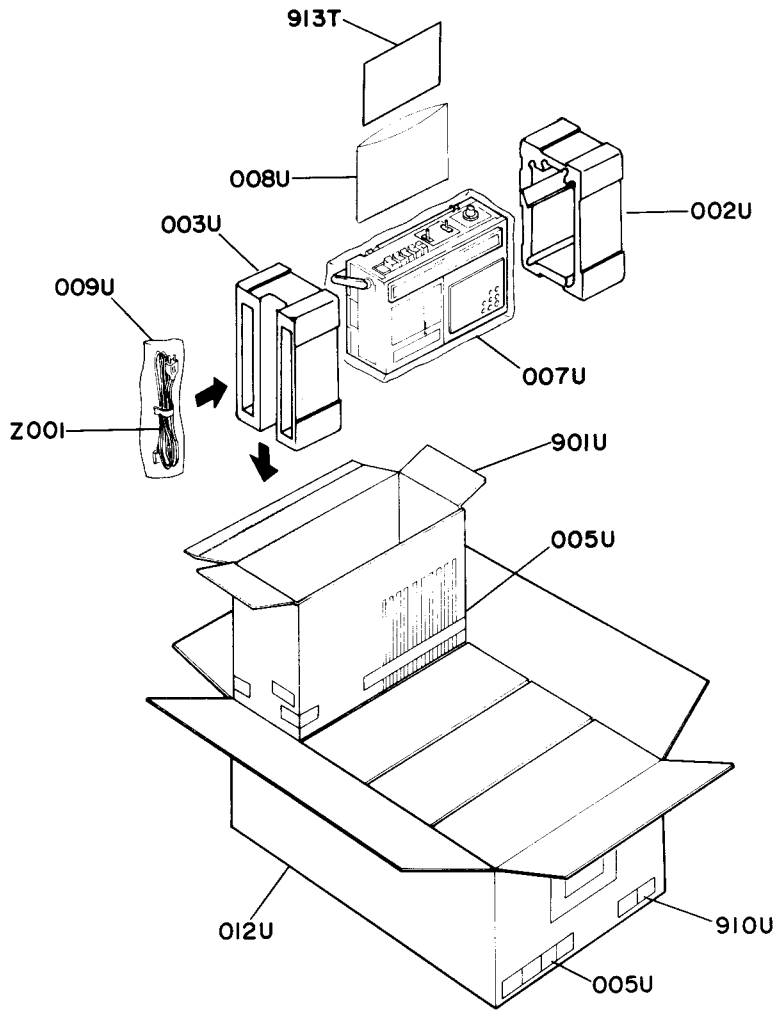
CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
150N	1	1	4367105023	Chassis
224N	1	1	4367115060	Spring
225N	1	1	4367115172	Spring
250N	1	1	4367115042	Spring
251N	1	1	4367115053	Spring
275N	1	1	51300308B0	P.H. TAP. Screw P3 x 8
280N	5	5	61020010T0	Ball
802N	1	1	4367160015	Bracket
834N	1	1	51100212A0	B.H.M. Screw B2 x 12
835N	1	1	51100210A0	B.H.M. Screw B2 x 10
836N	2	2	51100210A0	B.H.M. Screw B2 x 10
843N	1	1	62021030W0	Lug
H001	1	1	LH41202130	Rec/Play Head DC Bias
H002	1	1	LH31000320	Erase Head DC Erase
916N	1	1	4380115090	Spring
917N	1	1	3444118070	Spacer



REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
D	1	1	4367270400	Button Assembly, Stop/Eject
102C	1	1	4170270080	Button
045N	1	1	4367354742	Lever
E	1	1	4367270410	Button Assembly, FF
103C	1	1	4170270090	Button
035N	1	1	4367354733	Lever
F	1	1	4367270420	Button Assembly, Play
104C	1	1	4170270100	Button
025N	1	1	4367354722	Lever
G	1	1	4367270430	Button Assembly, Rew.
105C	1	1	4170270110	Button
015N	1	1	4367354703	Lever
H	1	1	4367270440	Button Assembly, Rec
106C	1	1	4170270120	Button
806N	1	1	4367354713	Lever
025F	1	1	4170107012	Sheet

- [H01-99] Packing Materials



CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
002U	1	1	4202809010	Cushion
003U	1	1	4202809020	Cushion
005U	2	2	9522815010	Serial No. Card
007U	1	1	9014540010	Polyethy Bag
008U	1	1	9013025010	Polyethy Bag
009U	1		9011025010	Polyethy Bag
012U	1		4204805010	Master Carton
012U		1	4203805010	Master Carton
901U	1		4204801010	Packing Case
901U		1	4205801010	Packing Case
910U	4	4	9510911040	Label
913T	1		4202851312	Instructions
913T		1	4202851312	Instructions

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
Z001	1	1	ZC01805010	A.C. Power Cord

15. ELECTRICAL PARTS LIST

CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
				P101-TUNER AND AUDIO CIRCUIT BOARD
P101	1		YK42041210	P.W. Board, Tuner and Audio
	1		ZZ42048210	P.W. Board Assembly
		1	ZZ42058210	P.W. Board Assembly
				P101-RESISTORS
				(All resistors are ±5% and 1/4W)
R101	1	1	GD05331140	330Ω
R102	1	1	GD05102140	1KΩ
R103	1	1	GD05100140	10Ω
R104	1	1	GD05273140	27KΩ
R105	1	1	GD05123140	12KΩ
R106	1	1	GD05681140	680Ω
R107	1	1	GD05103140	10KΩ
R108	1	1	GD05472140	4.7KΩ
R109	1	1	GD05224140	220KΩ
R110	1	1	GD05182140	1.8KΩ
R111	1	1	GD05100140	10Ω
R112	1	1	GD05102140	1KΩ
R113	1	1	GD05330140	33Ω
R114	1	1	GD05101140	100Ω
R115	1	1	GD05224140	220KΩ
R116	1	1	GD05154140	150KΩ
R117	1	1	GD05331140	330Ω
R118	1	1	GD05100140	10Ω
R119	1	1	GD05102140	1KΩ
R120	1	1	GD05561140	560Ω
R121	1	1	GD05100140	10Ω
R122	1	1	GD05101140	100Ω
R123	1	1	GD05124140	120KΩ
R124	1	1	GD05471140	470Ω
R125	1	1	GD05221140	220Ω
R126	1	1	GD05102140	1KΩ
R127	1	1	GD05102140	1KΩ
R128	1	1	GD05822140	8.2KΩ
R129	1	1	GD05822140	8.2KΩ
R130	1	1	GD05104140	100KΩ
R131	1	1	GD05823140	82KΩ
R132	1	1	GD05101140	100Ω
R133	1	1	GD05103140	10KΩ
R134	1	1	GD05124140	120KΩ
R135	1	1	GD05472140	4.7KΩ
R136	1		GD05562140	5,6KΩ
R136		1	GD05123140	12KΩ
R137	1		GD05104140	100KΩ
R137		1	GD05154140	150KΩ
R138	1	1	GD05333140	33KΩ
R139	1	1	GD05102140	1KΩ
R140	1	1	GD05470140	47Ω
R141	1	1	GD05393140	39KΩ
R142	1	1	GD05101140	100Ω
R143	1	1	GD05472140	4.7KΩ
R145	1	1	GD05222140	2.2KΩ
R146	1		GD05103140	10KΩ
R146		1	GD05154140	150KΩ
R147	1		GD05102140	1KΩ
R147		1	GD05223140	22KΩ
R148	1	1	GD05101140	100Ω
R149	1		GD05124140	120KΩ
R149		1	GD05154140	150KΩ
R152	1	1	GD05103140	10KΩ
R153		1	GD05560140	56Ω
R154	1		GD05681240	6.8KΩ
R201	1	1	GD05822140	8.2KΩ
R202	1	1	GD05183140	18KΩ
R203	1	1	GD05102140	1KΩ
R204	1	1	GD05102140	1KΩ
R205	1	1	GD05222140	2.2KΩ
R206	1	1	GD05125140	1.2MΩ
R207	1	1	GD05102140	1KΩ
R208	1	1	GD05123140	12KΩ
R209	1	1	GD05680140	68Ω
R210	1	1	GD05122140	5.1KΩ
R211	1	1	RK02030440	Variable 20KΩ
R212	1	1	GD05473140	47KΩ
R213	1	1	GD05223140	22KΩ
R214	1	1	GD05102140	1KΩ
R215	1	1	GD05390140	39Ω
R216	1	1	GD05100140	10Ω
R217	1	1	GD05221140	220Ω
R218	1	1	GD05333140	33KΩ
R219	1	1	GD05183140	18KΩ
R210	1	1	GD05680140	68Ω
R221	1	1	RC10033120	3.3Ω
R222	1	1	GD05101140	100Ω
R223	1	1	GD05123140	12KΩ
R251	1	1	GD05153140	
R252	1	1	GD05822140	
R253	1	1	GD05473140	
R254	1	1	GD05473140	
R255	1	1	GD05224140	
R256	1	1	GD05224140	

CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
				P101-CAPACITORS
C101	1	1	DD17470010	Ceramic 47pF SEV
C102	1	1	DD15300010	Ceramic 30pF ±5% 50V
C103	1	1	DD15400010	Ceramic 40pF ±5% 50V
C104	1	1	EA10505090	Elect 1μF 50V
C105	1	1	DK17102010	Ceramic 1000pF ±20% 50V
C106	1	1	DD16150030	Ceramic 15pF ±10% 50V
C107	1	1	DK18403020	Ceramic 0.04μF+80%−20%25V
C108	1	1	DD12050010	Ceramic 5pF+1pF−1pF50V
C109	1	1	DD16501010	Ceramic 500pF ±10% 50V
C110	1	1	DD15400010	Ceramic 40pF ±5% 50V
C111	1	1	DK17102010	Ceramic 1000pF ±20% 50V
C112	1	1	DD12050010	Ceramic 5pF+1pF−1pF50V
C113	1	1	DD12100060	Ceramic 10pF+1pF−1pF50V
C114	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C115	1	1	DK17102010	Ceramic 1000pF ±20% 50V
C116	1	1	DD12100060	Ceramic 10pF+1pF−1pF50V
C117	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C118	1	1	DK17102010	Ceramic 1000pF ±20% 50V
C119	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C120	1	1	DD16150030	Ceramic 15pF ±10% 50V
C121	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C122	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C123	1	1	DK18403020	Ceramic 0.04μF+80%−20%25V
C124	1	1	DK18403020	Ceramic 0.04μF+80%−20%25V
C125	1	1	DD15301020	Ceramic 300pF ±5% 50V
C126	1	1	EA47503590	Elect 4.7μF 35V
C127	1	1	DD16201010	Ceramic 200pF ±10% 50V
C128	1	1	DD16201010	Ceramic 200pF ±10% 50V
C129	1	1	DK17102010	Ceramic 1000pF ±20% 50V
C130	1	1	DF17223010	Film 0.022μF ±20% 50V
C131	1	1	DF17332010	Film 3300pF ±20% 50V
C132	1	1	DF17103010	Film 0.01μF ±20% 50V
C133	1	1	FK17102010	Ceramic 1000pF ±20% 50V
C134	1	1	EA22701090	Elect 220μF 10V
C135	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C136	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C137	1	1	EA47601090	Elect 47μF 10V
C138	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C139	1	1	EA22601090	Elect 22μF 10V
C140	1	1	DK18403020	Ceramic 0.04μF+80%−20%25V
C141	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C142	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C143	1	1	EA47503590	Elect 4.7μF 35V
C144		1	DD16150030	Ceramic 15pF 50V
C145	1	1	DF17472010	Film 4600pF 50V
C146	1	1	DF17472010	Film 4700pF 50V
C147	1		DF17103010	Film 0.01μF 50V
C147		1	DF17222010	Film 2200pF 50V
C148	1		DF17103010	Film 0.01μF 50V
C149	1		DF55151510	Film 150pF ±10% 50V

CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION
C149		1	DF55472010	Film 0.0047μF ±10% 50V
C150	1		DD16600010	Ceramic 60pF ±10% 50V
C151	1	1	CT21600010	Trimming
C152	1		DD12050010	Ceramic 5pF ±1pF 50V
C152		1	DD16150030	Ceramic 15pF ±10% 50V
C153	1		DF55271510	Film 270pF ±5% 125V
C153		1	DF55361510	Film 360pF 100V
C154	1	1	DK18203030	Ceramic 0.02μF+80%−20%25V
C155	1		DD12100060	Ceramic 10pF ±1pF 50V
C155		1	DD11020010	Ceramic 2pF 50V
C157		1	DD12050010	Ceramic 5pF ±1pF 50V
C159	1	1	DD16501010	Ceramic 500pF ±10% 50V
C160	1		CP22400130	Variable
C160		1	CP22400200	Variable
C161	1	1	EA47405090	Elect 0.47μF 50V
C162		1	DK17102010	Ceramic 1000pF ±20% 50V
C163	1	1	DD16201010	Ceramic 200pF ±5% 50V
C164	1	1	DK17102010	Ceramic 1000pF ±20% 50V
C165	1	1	DD15300010	Ceramic 30pF ±5% 50V
C166		1	DD10050030	Ceramic 5pF 50V
C201	1	1	DF16683010	Film 0.068μF ±10% 50V
C202	1	1	EA47405090	Elect 0.47μF 50V
C203	1	1	EA22601090	Elect 22μF 10V
C204	1	1	DD16501010	Ceramic 500pF ±10% 50V SL
C205	1	1	EA10505090	Elect 1μF 50V
C206	1	1	EV22403560	Elect 0.22μF 35V
C207	1	1	EA10701090	Elect 100μF 10V
C208	1	1	EA10505090	Elect 1μF 50V
C209	1	1	DD16501010	Ceramic 500pF
C210	1	1	EA22601090	Elect 22μF 10V
C211	1	1	EA47601090	Elect 47μF 10V
C212	1	1	DD16201010	Ceramic 200pF
C213	1	1	EA10701090	Elect 100μF 10V
C214	1	1	EA10701090	Elect 100μF 10V
C215	1	1	EA47701090	Elect 470μF 10V
C216	1	1	EA22701090	Elect 220μF 10V
C217	1	1	DF16472010	Film 0.0047μF ±10% 50V
C218	1	1	EA10801090	Elect 1000μF 10V
C219	1	1	EA10701090	Elect 100μF 10V
C220	1	1	EA10601690	Elect 10μF 16V
C221	1	1	DF17224010	Film 0.22μF
C222	1	1	DD16501010	Ceramic 500pF
C223	1	1	EA10601690	Elect 1μF 16V

CR-1053L : N (Scandinavia)
CR-1053S : E (Europe)

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION	
				P101-SEMICONDUCTORS	
Q101	1	1	HT313591C0	Transistor	2SC1359C
Q102	1	1	HT313591B0	Transistor	2SC1359B
Q103	1	1	HT308291C0	Transistor	2SC829C
Q104	1	1	HT308291C0	Transistor	2SC829C
Q105	1	1	HT308291C0	Transistor	2SC829C
Q106	1	1	HT308291B0	Transistor	2SC829B
Q107	1	1	HD20011050	Diode	1S1555
Q108	1	1	HD20011050	Diode	1S1555
Q109	1	1	HD40009090	Varicap	1S2688B
Q110	1	1	HD10002020	Diode	OA90
Q111	1	1	HD10002020	Diode	OA90
Q112	1	1	HD10002020	Diode	OA90
Q113	1	1	HD10003020	Diode	FM DET 2OA90
Q114	1	1	HD10003020	Diode	FM DET 2OA90
Q115	1	1	HD10002020	Diode	OA90
Q116	1	1	HV00009020	Varistor	MA26W
Q117	1	1	HV00009020	Varistor	MA26W
Q118	1	1	HD10002020	Diode	OA90
Q119	1	1	HD10002020	Diode	OA90
Q120	1	1	HD20011050	Diode	1S1555
Q121		1	HD10002020	Diode	OA90
Q201	1	1	HT309001U0	Transistor	2SC900
Q202	1	1	HC10022030	IC	LA4110 Audio IC
Q203	1	1	HD30008060	Zener	
				P101-MISCELLANEOUS	
L101	1	1	LA70238020	ANT Coil	FM ANT
L102	1	1	LK22400050	Coil	FM RF
L103	1	1	LC16810010	Choke Coil	0.68μH
L104	1	1	LK22400030	Coil	FM OSC
L105	1	1	LI70038180	I.F.T.	FM IFT (Purple)
L106	1	1	LI70038140	I.F.T.	FM
L107	1	1	LI70038140	I.F.T.	FM
L108	1	1	LI70138020	I.F.T.	FM DET
L109	1	1	LI70038150	I.F.T.	FM DET
L110	1		LO70030080	OSC Coil	LW OSC
L110		1	LO71010060	OSC Coil	
L111	1		LO71010010	OSC Coil	MW OSC
L111		1	LO71010030	OSC Coil	
L112	1		LI70033030	I.F.T.	AM
L112		1	LI71010060	I.F.T.	AM
L113	1	1	LI70033040	I.F.T.	AM
L114	1	1	LI70033050	I.F.T.	AM
L115	1		LF11200550	ANT Coil	MW. LW Bar Ant
L115		1	LF11200580	ANT Coil	MW. LW Bar Ant
L201	1	1	LC12240060	Choke Coil	220μH
S101	1	1	SS08030140	Slide Switch	Band
S102	1	1	SC04020110	Switch	Function
S201	1	1	SS07020010	Slide Switch	R/P SW.
S202	1	1	SS02020490	Slide Switch	Monitor Switch
J203	1	1	BY01030030	Jack	Jack Board

REF. DESIG.	Q'TY N	Q'TY E	PART NO.	DESCRIPTION		
				P301-POWER SUPPLY CIRCUIT BOARD		
P301	1		YK42041220	P.W. Board, Power Supply		
	1		ZZ42048220	P.W. Board Assembly		
		1	ZZ42048210	P.W. Board Assembly		
				P301-CAPACITORS AND SEMICONDUCTORS		
C301	1	1	EA22801090	Elect	2200μF	10V
C302	1	1	DK18103010	Ceramic	0.01μF+100%—0%50V	
C303	1	1	DK18103010	Ceramic	0.01μF+100%—0%50V	
C304	1	1	DK18103010	Ceramic		
C305	1	1	DK18103010	Ceramic		
Q301	1	1	HD20006100	Diode		
Q302	1	1	HD20007100	Diode		
				P301-MISCELLANEOUS		
F301	1	1	FS10080800	Fuse		
J301	7	7	YP10001130	Plug	Plug	
J311 ~ J320	10	10	YP10001530	Plug	Plug	

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